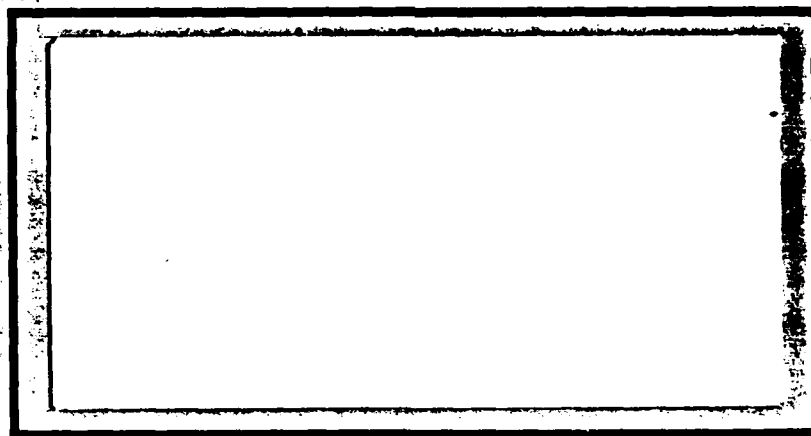


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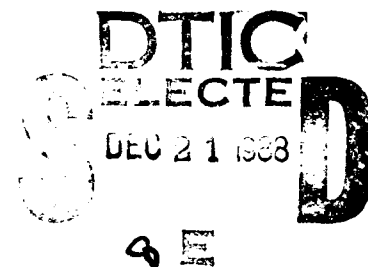
AFIT/GCA/LSY/88S-10

THE EFFECT ON FAMILY INCOME OF
VARYING THE FREQUENCY OF PERMANENT
CHANGE OF STATION MOVES

THESIS

Rodney M. Troyanowski
Captain, USAF

AFIT/GCA/LSY/88S-10

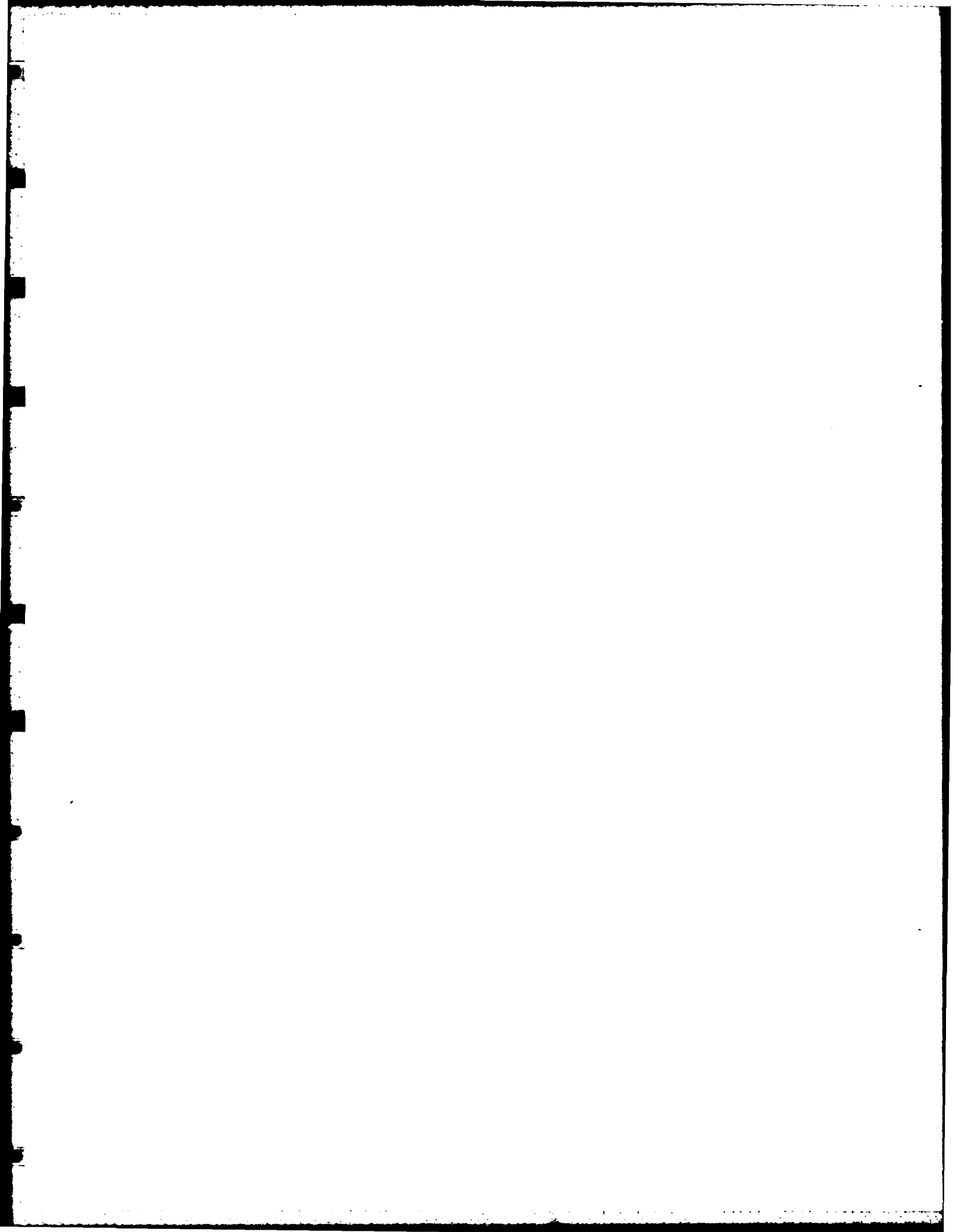


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AFIT/GCA/LSY/88S-10

THE EFFECT ON FAMILY INCOME OF
VARYING THE FREQUENCY OF PERMANENT
CHANGE OF STATION MOVES

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Cost Analysis

Rodney M. Troyanowski, B.S.

Captain, USAF

September 1988

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Rodney M. Troyanowski

Table of Contents

| | Page |
|---|------|
| Acknowledgements | ii |
| List of Figures | vi |
| List of Tables | vii |
| Abstract | ix |
| I. Introduction | 1 |
| General Issue | 1 |
| Specific Problem | 2 |
| Research Questions | 3 |
| Sources of Information | 3 |
| Background | 4 |
| Plan of this Study | 7 |
| II. Data Description | 8 |
| Introduction | 8 |
| Mobility of Military Families | 8 |
| Proportion of Wives Working | 9 |
| Wife's Income | 11 |
| Effect of Work Interruptions on Wife's Wages | 14 |
| Military Income | 16 |
| Military Members Working Second Jobs | 19 |
| III. Unreimbursed Moving Expenses | 22 |
| Introduction | 22 |
| Before Move Expenses | 23 |
| During Move Expenses | 24 |
| After Move Expenses | 25 |
| Automobile Expenses | 25 |
| Reimbursements | 26 |
| Unreimbursed Moving Expenses | 26 |
| Cost of Buying and Selling a House | 28 |
| IV. Methodology | 29 |
| Introduction | 29 |
| Timing of PCS Moves | 32 |
| Wife's Income | 33 |
| Wife's Income - CONUS | 34 |
| Probability of Living and Working in the CONUS | 34 |
| Probability of Working Full Time - CONUS | 39 |
| Wife's Full Time Income - CONUS | 40 |

| | |
|---|------------|
| Expected Value of Part-time Income - CONUS | 44 |
| Expected Wife's Income - CONUS | 45 |
| Wife's Income - Overseas | 45 |
| Probability of Working - Overseas | 45 |
| Probability of Working Full Time - Overseas | 47 |
| Full Time Income - Overseas | 48 |
| Expected Part-time Income - Overseas | 48 |
| Expected Wife's Income - Overseas | 48 |
| Member's Off-duty Job Income | 48 |
| Member's Second Job Expected Income - CONUS . . | 49 |
| Probability of Working Off-duty - CONUS . . . | 49 |
| Part-time Job Income - CONUS | 51 |
| Member's Second Job Expected Income - Overseas . | 51 |
| Probability of Working Off-duty - Overseas | 52 |
| Part-time Job Income - Overseas | 52 |
| Unreimbursed Moving Expenses | 53 |
| Value of Military Income | 54 |
| V. Results | 56 |
| Introduction | 56 |
| Total Family Income | 56 |
| Air Force Family Income | 57 |
| Army Family Income | 57 |
| Navy Family Income | 59 |
| Marine Family Income | 59 |
| Comparison of Results | 61 |
| Sensitivity Analysis | 63 |
| All Wives Working Full Time | 63 |
| All Wives Working Part-time | 64 |
| VI. Conclusions and Recommendations | 66 |
| Conclusion | 66 |
| Summary | 66 |
| Answers to the Research Questions | 67 |
| Areas For Further Research | 69 |
| Appendix A: Probability of the Working - CONUS: Results and Input Values | 71 |
| Appendix B. Probability of Working Wives Working Full Time - CONUS: Results and Input Values . . . | 75 |
| Appendix C: Wife's Full Time Income - US: Results and Input Values | 77 |
| Appendix D: Probability of the Wife Working - Overseas: Results and Input Values | 94 |
| Appendix E: Probability of Working Wives Working Full Time - Overseas: Results and Input Values . | 96 |

| | |
|--|-----|
| Appendix F: Probability of Working a Second Job - CONUS: Results and Input Values . . . | 98 |
| Appendix G: Military Income: Equations, Results, and Input Values | 102 |
| Appendix H: Total Family Income | 113 |
| Bibliography | 121 |
| VITA | 123 |

List of Figures

| Figure | Page |
|---|------|
| 1. Number of Wife Moves for a 20 Year Career | 9 |
| 2. Expected Value: Wife's Income for a Given Year | 30 |
| 3. Expected Value: Member's Second Job Income for a Given Year | 31 |
| 4. Total Family Income Annuity - Air Force | 58 |
| 5. Total Family Income Annuity - Army | 58 |
| 6. Total Family Income Annuity - Navy | 60 |
| 7. Total Family Income Annuity - Marines | 60 |

List of Tables

| Table | Page |
|--|------|
| 1. Percentage of Wives Working | 10 |
| 2. Percentage of Working Wives that Work Full Time . . | 12 |
| 3. Average Income for Wives Working Full Time | 13 |
| 4. Average Income for Wives Working Part-time | 15 |
| 5. Total Military Income (Married Members) | 18 |
| 6. Percentage of Married Military Members Working Part-time | 20 |
| 7. Average Off-duty Income | 21 |
| 8. Moving Expenses and Reimbursements for Officer Families (\$) | 27 |
| 9. Moving Expenses and Reimbursements for Enlisted Families (\$) | 27 |
| 10. Move Points in the 20 Year Career | 33 |
| 11. Maximum Likelihood Logit Equation of Wife Working in the US | 35 |
| 12. Probability of Wife Working - CONUS Officer Wives | 38 |
| 13. Maximum Likelihood Logit Equation of Wife Working Full Time in the US | 40 |
| 14. Equation for Wife's Full Time Weekly Wage | 41 |
| 15. Maximum Likelihood Logit Equation of Wife Working Overseas | 46 |
| 16. Maximum Likelihood Logit Equation of Wife Working Full Time Overseas | 47 |
| 17. Maximum Likelihood Logit Equation for Members Working Part-time CONUS | 50 |
| 18. Twenty Year Military Annuity | 55 |
| 19. Average Decrease in Annual Income Annuity per Move . | 61 |

| | | |
|-----|---|----|
| 20. | Annuities Based on the Expected Number of Wife Moves | 63 |
| 21. | Sensitivity Analysis - Wife Working Full Time Expected Family Income Annuity | 64 |
| 22. | Sensitivity Analysis - Wife Working Part-time Expected Family Income Annuity | 65 |

Abstract

This study analyzes the effect varying the number of permanent change of station (PCS) moves during a 20 year military career has on total family income. The number of PCS moves was varied from 5 to 9 over the 20 years to determine the effect on officer and enlisted family income for each of the services. This study limited the population to male military members married to civilian wives. Also, only PCS moves where the wife accompanies the member were considered.

This study identified 4 items that can affect family income as a result of a PCS move. First, the family may have moving expenses that are not reimbursed by the government. Second, if the wife works, she must quit her job and suffer a period of unemployment. Third, the wife must seek employment at the new location. Usually, the new job will pay less than the old job due to foregone tenure. Finally, the military member may have a change in part-time income if he works during his off-duty time.

Unreimbursed moving expenses were calculated from data obtained by the Air Force Manpower and Personnel Center in the 1987 PCS Cost Survey. The other components of family income were calculated using data from the 1985 DOD Survey of Officer and Enlisted Personnel and the 1985 DOD Survey of

Military Spouses. When possible, equations were derived to predict the probability of working and the income earned from a job. Using these figures, expected family income was calculated for each of the 20 years in the career. Then, a yearly income annuity was calculated for the sum of the present value of the yearly incomes.

Each additional PCS move during a 20 year career decreases the yearly family income annuity by approximately \$200. Increasing the frequency of PCS moves has a greater income impact on officer families than enlisted families.

THE EFFECT ON FAMILY INCOME OF
VARYING THE FREQUENCY OF PERMANENT
CHANGE OF STATION MOVES

I. Introduction

General Issue

A career in the military is different from a civilian career. Some of the unique characteristics of a military career are frequent permanent change of station (PCS) moves; prolonged periods of family separation due to deployments, sea duty, and remote assignments; and tours of duty outside the United States.

The Department of Defense (DOD) is concerned with the retention and recruitment of qualified individuals to maintain an effective all-volunteer force. An individual's decision to pursue a career in the military (typically 20 or more years) is influenced by family considerations to some degree. Nearly 60 percent of the enlisted force is married and about 75 percent of all officers are married (13:55,58). Since such a large percentage of military members are married, the DOD must be aware of how its policies impact the quality of life of military families.

Due to budget constraints, the DOD has implemented various cost reduction measures. One method of cost reduction implemented by the DOD is reducing the number of

PCS moves by keeping people at one location for longer periods of time. In this study, a PCS move is defined as a non-local move of the entire family. Decreasing the frequency of PCS moves will impact the quality of life for the military family.

Specific Problem

One measure of family well-being is total family income. A PCS move can impact family income in these four areas: First, the family may have moving expenses that are not reimbursed. Second, if the spouse works, the spouse must quit his or her job and suffer a period of unemployment. Third, the spouse must seek employment at the new location. Usually, the new job will pay less than the old job due to foregone tenure. Finally, the military member may have a change in part-time income if he/she holds an second job on their off-duty time.

This study will attempt to determine the effect that varying the number of PCS moves made by a spouse from 5 to 9 over a 20 year career has on total family income for officer and enlisted personnel of the four branches of military service (Army, Navy, Marines, and the Air Force).¹ Women have different work force participation patterns than men.

¹Military members sometimes move unaccompanied by their spouse. The ratio of military member moves to spouse moves for officers is 1.118 (Air Force), 1.129 (Army), 1.127 (Navy), and 1.125 (Marines). For enlisted personnel, the corresponding numbers are 1.192 (Air Force), 1.292 (Army), 1.232 (Navy), and 1.267 (Marines).

Therefore, this study limits the population to be studied to male military members married to civilian wives since approximately 90 percent of the military force consists of males. The population is limited further to include only people in their first marriage and to those who were not married for more than one year before the start of the military career. The purpose of this limitation is to isolate the impact on family income from the endogenous characteristics of a military career.

Research Questions. The research questions that are investigated are as follows:

1. How important is the effect of PCS moves on total family income?
 - a. What impact does moving have on the probability of the wife working?
 - b. What impact does moving have on the wife's earnings?
 - c. What impact does moving have on the probability of the member working a part-time job and the amount of income derived from that part-time job?
2. How does the impact of PCS moves differentially affect the officer and enlisted families of the different services and if so, why?
3. What is the amount of unreimbursed expenses incurred by the family during a PCS move?

Sources of Information

The primary sources of information are the 1985 DOD Survey of Officer and Enlisted Personnel (also called the 1985 Member Survey) and the 1985 DOD Survey of Military Spouses (also called the 1985 Spouse Survey). These two

surveys were administered by the Defense Manpower Data Center. Nearly 19,000 officers and almost 70,000 enlisted personnel responded to the 1985 Member Survey (13:iii). The 1985 Spouse Survey was sent to the spouses of the military members that received the Member Survey. Over 41,000 spouses responded to this survey (8:iii). The questions asked by these two surveys pertain to personal and military background, family economic status, family composition, family programs and services, civilian labor force experience, and family moving experiences (13:iii).

Additional information came from the 1987 PCS Cost Survey conducted by the Air Force Manpower and Personnel Center. Over 800 Air Force officers and over 1,500 Air Force enlisted personnel responded to this survey. All the respondents made a PCS move in the year preceding the survey. This survey asked questions pertaining to family background, moving costs, and reimbursements associated with the PCS move.

Background

The major cause of variance in total family income for military members of the same grade and service longevity is spousal income. Almost all military wives are under the age of 45, and when contrasted with civilian wives under the age of 45, the military wives' labor force participation rate is almost 15 percentage points lower than the civilian wives' rate (10:31).

Three possible reasons why military wives' labor force participation rate is lower than their civilian counterpart's are as follows: First, military wives are often placed as the head of the household while their husbands are assigned to ships, on deployment, or assigned to locations where the family cannot accompany them (9:60-61). In March 1986, 5.5 percent of all military wives were geographically separated from their husbands (10:31). In the survey, 8 percent of the enlisted force and 5 percent of the officers were separated from their families (8:41-42). Second, military families tend to have more children, thus reducing the likelihood of the military wife participating in the labor force, especially if there are preschool children at home (10:31). Finally, the frequent PCS moves severely impacts job opportunities for the military wife. Employment interruptions caused by PCS moves prevent military wives from obtaining specialized training and tenure with an employer which causes the wife to start over at entry level positions after each move (9:62). With each move, the military wife faces the prospect of looking for employment in unfamiliar locations and possible discrimination by employers who consider military wives as short-term employees (10:33).

Due to high mobility, military wives have less tenure in their current job than their civilian counterparts. For full time workers, 71.0 percent of civilian wives and only 45.2 percent of military wives have been employed in their current

job for more than 50 weeks (5:3). For part-time workers, 34.5 percent of civilian wives versus 21.6 percent of military wives have been employed in their current job for more than 50 weeks (5:3). This lack of tenure results in military wives having smaller wages than civilian wives.

In addition to the labor force participation problems caused by high mobility, military wives also face some of the same labor force participation problems that are encountered by wives in general. Studies show that women tend to have different work participation patterns than men -- they generally have more career interruptions "to accommodate family and child-rearing duties" (3:249). An obstacle facing women in the labor force is lower wages resulting from the intermittent work pattern and from a lack of investment in human capital (4:386). Due to intermittent employment, employers and employees have less incentive to pursue training due to the shorter time span to amortize the training investment (4:386). "Women are a vital part of today's labor force, and work is clearly an important part of their lives" (3: 249). The DOD must be aware of the importance that the wife's employment role plays in the decision making process of the military family.

In addition to investigating the impact of PCS moves on wives' earnings, this study also looks at off-duty part-time income of the military member and out-of-pocket unreimbursed

expenses associated with a PCS move. All of these items contribute to the welfare of the military family.

Plan of this Study

Chapter II contains descriptions of data from the surveys and reviews the applicable literature. Unreimbursed moving expenses are analyzed in Chapter III. Chapter IV discusses the methodology used to analyze the data to determine the impact that PCS moves has on military family income. Chapter V analyzes the data and compares family income annuities for different PCS rates for a 20 year career. Finally, Chapter VI contains conclusions and recommendations.

II. Data Description

Introduction

This chapter describes the background data of interest to this study and briefly reviews some of the applicable literature. The first section discusses the expected number of moves made by military families during a 20 year career. The second section shows the proportion of military wives working. The third section describes the income contribution of military wives. The fourth section discusses how mobility and career interruptions affect women's wages. The final two sections discuss military income and income earned from off-duty employment.

Mobility of Military Families

One distinguishing characteristic of military families from civilian families is that military families are more mobile. From the 1985 Spouse Survey, 32.12 percent of the families made a PCS move the previous year. In 1984, only 18.6 percent of the entire employed civilian work force moved, either within or outside the local area (1:3).

Figure 1 shows the percentage distribution of the number of family moves made by officer and enlisted personnel who served between 19 and 20 years. Limiting the sample in this manner makes it possible to show the number of family moves for a typical 20 year career in the military. Nearly 32 percent of the officer families, but only 4.6 percent of the

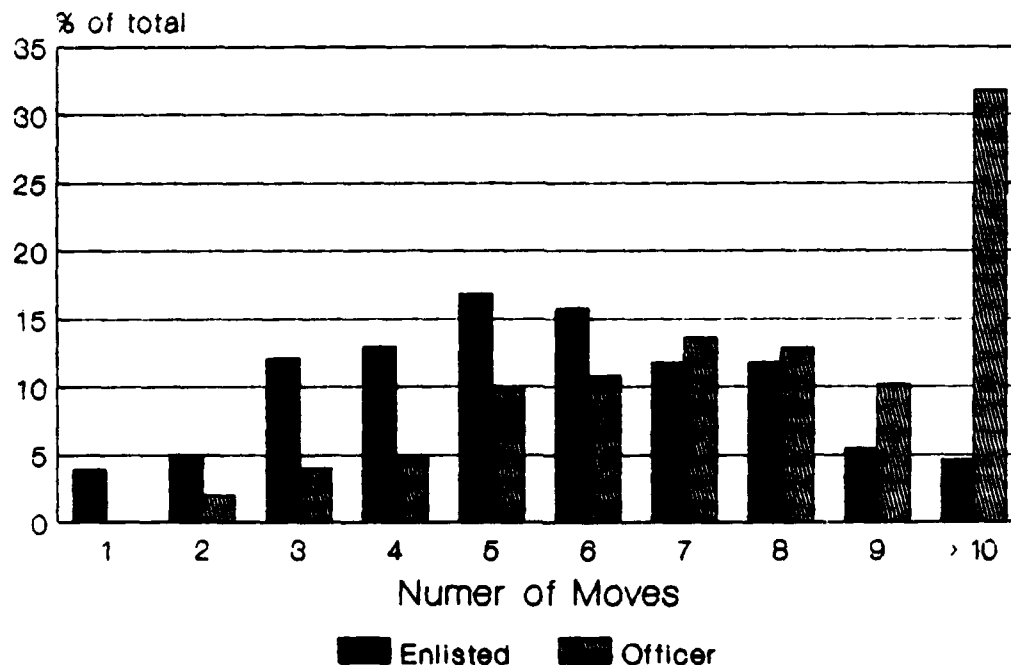


Figure 1. Number of Wife Moves for a 20 Year Career

enlisted families moved more than 10 times in the member's career. Over a 20 year career, officers make more PCS move than enlisted personnel. Army families move more often than the families in the other three services.

Proportion of Wives Working

The high mobility factor associated with the military may partially explain why military wives are less likely to work than their civilian counterparts of the same age (10:31). From the survey, 47.9 percent of the military wives were employed and 9.3 percent considered themselves unemployed.

Table 1 shows the percent of military wives working (part-time or full time), calculated from the spouse survey.

Table 1
Percentage of Wives Working

| Years of Service | | Army | Air Force | Navy | Marines | All Services |
|--------------------|-------|-------|-----------|-------|---------|--------------|
| Enlisted Wives | < 4 | 36.72 | 48.30 | 46.41 | 42.17 | 43.58 |
| | 4-8 | 40.34 | 50.08 | 45.62 | 42.06 | 44.39 |
| | 8-12 | 44.05 | 49.47 | 48.65 | 47.54 | 47.21 |
| | 12-16 | 48.67 | 54.24 | 51.26 | 50.39 | 51.18 |
| | 16-20 | 54.45 | 55.22 | 57.11 | 58.09 | 56.04 |
| | > 20 | 46.04 | 58.77 | 56.57 | 57.52 | 55.10 |
| All Enlisted Wives | | 44.34 | 51.97 | 49.88 | 47.54 | |
| Officer Wives | < 4 | 50.79 | 48.79 | 51.17 | 51.14 | 50.28 |
| | 4-8 | 45.24 | 40.00 | 45.92 | 42.11 | 42.97 |
| | 8-12 | 40.57 | 41.44 | 40.86 | 39.85 | 40.75 |
| | 12-16 | 46.51 | 44.49 | 44.69 | 50.00 | 46.26 |
| | 16-20 | 52.96 | 49.62 | 54.32 | 49.45 | 51.39 |
| | > 20 | 45.50 | 48.95 | 43.93 | 57.14 | 48.40 |
| All Officer Wives | | 46.90 | 45.33 | 46.64 | 47.63 | |
| All Wives | | 45.08 | 49.87 | 49.08 | 47.56 | 47.90 |

The percentage of wives working ranges from 52 percent for Air Force enlisted wives to 44 percent for Army enlisted wives. Using the T-test for difference of means at the 95 percent level of confidence, wives of Navy and Air Force members are more likely to work when compared to the wives of the other three services taken as a group. Also, Army wives are less likely to work than the wives of the other services taken as a group.

Overall, wives are less likely to work earlier in their husband's career. This is probably due to women opting to stay at home to take care of young children.

Table 2 shows the percentage of working wives that work full time for each service and whether the husband is an officer or enlisted member. Overall, military wives are almost twice as likely to work full time as part-time.

Wive's Income

Wives make a significant contribution to total military family income. For the average enlisted family, the wife accounts for 36 percent of total family income when children are not present and 26 percent when children are present (13:162). For the average officer family, the wife accounts for 31 percent of income for families without children and 15 percent for families with children.

Table 3 shows the average annual income for wives that work full time. The average full time wage income is \$8,368 for enlisted wives and \$12,006 for officer wives. Officers

Table 2
Percentage of Working Wives that Work Full Time

| Years of Service | | Army | Air Force | Navy | Marines | All Services |
|--------------------|-------|-------|-----------|-------|---------|--------------|
| Enlisted Wives | < 4 | 22.51 | 31.24 | 29.53 | 28.55 | 28.02 |
| | 4-8 | 27.81 | 33.81 | 29.92 | 29.06 | 30.10 |
| | 8-12 | 29.66 | 31.03 | 33.76 | 32.40 | 31.61 |
| | 12-16 | 33.16 | 36.38 | 34.87 | 37.04 | 35.34 |
| | 16-20 | 39.09 | 34.99 | 42.27 | 40.36 | 38.67 |
| | > 20 | 34.36 | 38.15 | 39.23 | 42.48 | 38.50 |
| All Enlisted Wives | | 30.34 | 33.90 | 34.07 | 33.21 | |
| Officer Wives | < 4 | 32.18 | 26.57 | 36.72 | 34.09 | 31.65 |
| | 4-8 | 29.70 | 23.68 | 29.30 | 27.37 | 27.13 |
| | 8-12 | 24.57 | 24.96 | 21.59 | 23.23 | 23.92 |
| | 12-16 | 27.02 | 21.15 | 24.25 | 29.22 | 25.02 |
| | 16-20 | 32.49 | 27.37 | 29.32 | 28.57 | 29.48 |
| | > 20 | 30.50 | 28.57 | 24.86 | 34.64 | 29.36 |
| All Officer Wives | | 29.20 | 25.15 | 27.35 | 28.95 | |
| All Wives | | 30.01 | 31.12 | 32.41 | 32.18 | 31.36 |

Table 3
Average Income for Wives Working Full Time

| Years of Service | Army | Air Force | Navy | Marines | All Services |
|---------------------|----------|--------------|----------|----------|-----------------|
| Enlisted | | | | | |
| < 4 | 5390.00 | 5231.00 | 7009.00 | 6051.00 | 5788.00 |
| Wives | | | | | |
| 4-8 | 5553.00 | 5599.00 | 7465.00 | 6666.00 | 6299.00 |
| 8-12 | 6931.00 | 7127.00 | 9538.00 | 8569.00 | 8040.00 |
| 12-16 | 8490.00 | 7988.00 | 10469.00 | 9844.00 | 9124.00 |
| 16-20 | 10219.00 | 10934.00 | 12603.00 | 11041.00 | 11176.00 |
| > 20 | 10956.00 | 10626.00 | 12067.00 | 12605.00 | 11542.00 |
| All Enlisted Wives | 7571.00 | 7624.00 | 9737.00 | 8709.00 | 8368.00 |
| Officer | | | | | |
| < 4 | 8900.00 | 11558.00 | 13801.00 | 9947.00 | 11040.00 |
| Wives | | | | | |
| 4-8 | 10247.00 | 8900.00 | 12873.00 | 12068.00 | 10843.00 |
| 8-12 | 8878.00 | 10117.00 | 12615.00 | 12299.00 | 10592.00 |
| 12-16 | 11636.00 | 10496.00 | 12802.00 | 12553.00 | 11748.00 |
| 16-20 | 12159.00 | 12978.00 | 15314.00 | 12332.00 | 12974.00 |
| > 20 | 15445.00 | 14466.00 | 13923.00 | 14191.00 | 14570.00 |
| All Officer Wives | 11334.00 | 11467.00 | 13598.00 | 12273.00 | 12006.00 |
| All Wives | 8621.00 | 8610.00 | 10541.00 | 9480.00 | 9247.00 |

tend to marry older women with more education than the wives of enlisted personnel. Hence, the higher income for officer wives reflects the fact that they have more education and accumulated work experience than enlisted wives. There is a general trend of increasing annual wife's income as the years of service of the military member increases. This is expected since the wife gains work experience over time; therefore, she is more likely to hold a higher paying job. The full time income of Navy wives (both officer and enlisted) is significantly greater than their counterparts in the other services. Navy personnel tend to be assigned near metropolitan areas along both coasts of the United States. Therefore, Navy wives have access to the nominally higher paying jobs associated with metropolitan areas. In addition, Navy wives have higher paying jobs because they have more tenure as a result of moving less frequently.

Table 4 shows the average annual income for wives that work part-time. Enlisted wives' average part-time income is \$4,584, compared to \$5,170 for officer wives. The difference in enlisted and officer wives' part-time income is not as great as the difference in full time income because other factors such as number of hours worked influence total income in addition to education work experience.

Effect of Work Interruptions on Wife's Wages

A PCS move forces a working military wife to interrupt her career for at least the amount of time it takes her to

Table 4
Average Income for Wives Working Part-time

| Years of Service | Army | Air Force | Navy | Marines | All Services |
|--------------------|---------|-----------|---------|---------|--------------|
| Enlisted Wives | | | | | |
| < 4 | 3374.00 | 3196.00 | 3208.00 | 2781.00 | 3166.00 |
| 4-8 | 2907.00 | 3886.00 | 3534.00 | 3389.00 | 3466.00 |
| 8-12 | 4798.00 | 4096.00 | 4701.00 | 4420.00 | 4493.00 |
| 12-16 | 4443.00 | 5227.00 | 5227.00 | 4293.00 | 4840.00 |
| 16-20 | 4792.00 | 5740.00 | 5849.00 | 8248.00 | 6105.00 |
| > 20 | 5940.00 | 6911.00 | 7066.00 | 7796.00 | 6967.00 |
| All Enlisted Wives | 4182.00 | 4677.00 | 4703.00 | 4733.00 | 4584.00 |
| Officer Wives | | | | | |
| < 4 | 4392.00 | 5853.00 | 5098.00 | 3862.00 | 4965.92 |
| 4-8 | 4253.00 | 4736.00 | 7502.00 | 4463.00 | 5177.00 |
| 8-12 | 4532.00 | 3519.00 | 5000.00 | 4316.00 | 4240.00 |
| 12-16 | 5958.00 | 4334.00 | 4763.00 | 6637.00 | 5292.00 |
| 16-20 | 5970.00 | 4533.00 | 6909.00 | 5151.00 | 5545.00 |
| > 20 | 4878.00 | 5717.00 | 5469.00 | 6114.00 | 5568.00 |
| All Officer Wives | 5186.00 | 4709.00 | 5864.00 | 5259.00 | 5170.00 |
| All Wives | 4518.00 | 4688.00 | 5027.00 | 4879.00 | 4764.00 |

find work at the new location. Mincer and Ofek studied the wage effect of interrupted work careers for married women aged 30 to 44 using panel data from the National Longitudinal Survey. Their findings reaffirm the premise of human capital theory that career interruptions erode accumulated work experience (human capital) and results in lower wages upon re-entry into the labor force. They found that the loss of human capital due to a move induced work interruption is greater than the of human capital form other interruptions, such as having or raising a children (14:11). Mincer and Ofek's estimate of the short-run effect of labor force non-participation is the reduction in wages (at the time of re-entry) of between 3.3 percent and 7.6 percent per year of absence from the labor force (14:11). However, these figures include the effect of forgone tenure. They also found that the amount of wages lost due to non-participation in less in the long-run. Eventually, the wage profile of returnees become identical to continuous workers although there appears to be a long-run depreciation effect on wages of between 1.5 percent and 2 percent per year of labor force absence which reflects the loss of tenure as well as the loss of general human capital (14:11).

Military Income

For nearly all military families, the income received from military compensation is the most important source contributing to total family income. On average, military

income accounts for 72 percent of enlisted family income and for 77 percent of officer family income (13:162-163).

Military income can be broken down into three categories -- basic pay, taxable special pays, and non-taxable allowances. Every military member receives basic pay which is taxable and accounts for approximately 75 percent of total military compensation. Basic pay is standardized, and the amount is based on the rank of the member and the number of years in the service. Taxable special pays include career specific incentive bonuses (such as medical pay for doctors) and job related special pay (such as flight pay, sea duty pay, and hazardous duty pay). Non-taxable allowances are intended to offset the cost of housing and meals. Every member either receives these allowances or housing and meals provided at government expense. The three main types of non-taxable allowances are basic allowance of quarter (BAQ), basic allowance for subsistence (BAS), and variable housing allowance (VHA). The amount of BAQ is determined by the rank of the member and whether he or she has dependents. Officer and enlisted personnel have different BAS rates. VHA is an additional housing allowance paid to members assigned to high cost of living areas to offset their higher housing costs.

Table 5 shows total military compensation for married member of each service. The increasing trend for military income as year of service increases reflects increasing basic pay as rank and longevity increase. Income for Air Force

Table 5
Total Military Income (Married Members)

| Years of Service | Army | Air Force | Navy | Marines | All Services |
|---------------------|--------|--------------|--------|---------|-----------------|
| Enlisted | | | | | |
| < 4 | 14,477 | 14,176 | 15,555 | 14,888 | 14,686 |
| 4-8 | 18,257 | 17,814 | 19,859 | 19,706 | 19,027 |
| 8-12 | 21,204 | 19,916 | 22,603 | 22,483 | 21,739 |
| 12-16 | 23,676 | 22,377 | 25,178 | 25,186 | 24,159 |
| 16-20 | 25,691 | 25,289 | 27,304 | 26,979 | 26,252 |
| > 20 | 30,413 | 29,688 | 30,372 | 31,238 | 30,350 |
| All Enlisted | 20,083 | 19,651 | 22,086 | 21,701 | 20,931 |
| Officer | | | | | |
| < 4 | 27,698 | 26,804 | 30,467 | 24,675 | 27,353 |
| 4-8 | 33,623 | 33,077 | 34,895 | 33,180 | 33,670 |
| 8-12 | 36,276 | 37,643 | 42,525 | 38,413 | 38,379 |
| 12-16 | 41,829 | 41,998 | 44,941 | 43,629 | 42,878 |
| 16-20 | 47,024 | 45,778 | 47,488 | 47,145 | 46,669 |
| > 20 | 53,979 | 53,304 | 54,601 | 53,857 | 53,841 |
| All Officers | 40,224 | 40,173 | 42,166 | 38,831 | 40,375 |
| All Personnel | 30,559 | 31,052 | 30,633 | 28,947 | 30,385 |

enlisted personnel is lower than the other services because the Air Force enlisted promotion rate is slower. For instance, it takes approximately three years longer to be promoted to E-6 and E-7 in the Air Force than the other services (2:38). Military income for the Navy tends to be higher because a greater proportion receive special pays, mainly sea duty pay. Also, Navy members receive larger VHA payments because a greater proportion of their members are assigned to high cost of living areas.

Military Members Working Second Jobs

On average, income from a second job by military members account for only 2 percent of total enlisted family income and for 1 percent of total family income of officers (13:162-163). Table 6 shows the percentage of married military personnel working at a second job, broken down by service and officer/enlisted. Enlisted personnel are about twice as likely to work a second job as officers (9.6 percent versus 4.6 percent). Table 7 shows the average annual second job income. There is no discernable pattern to the average second job income. The average second job income is \$3,403 for enlisted personnel and \$5,155 for officers.

Table 6
Percentage of Married Military Members Working Part-time

| Years of Service | | Army | Air Force | Navy | Marines | All Services |
|------------------|-------|-------|-----------|-------|---------|--------------|
| Enlisted | < 4 | 6.55 | 9.78 | 8.33 | 5.93 | 8.02 |
| | 4-8 | 4.40 | 10.83 | 8.21 | 10.99 | 8.99 |
| | 8-12 | 6.88 | 10.33 | 8.70 | 9.49 | 8.94 |
| | 12-16 | 8.12 | 11.02 | 10.28 | 15.92 | 11.07 |
| | 16-20 | 11.40 | 12.87 | 12.40 | 12.50 | 12.44 |
| | > 20 | 9.62 | 5.43 | 13.19 | 8.00 | 9.12 |
| All Enlisted | | 7.04 | 10.63 | 9.46 | 10.71 | 9.62 |
| Officer | < 4 | 2.38 | 2.00 | 3.54 | 0.88 | 2.17 |
| | 4-8 | 6.75 | 4.40 | 3.76 | 2.86 | 4.39 |
| | 8-12 | 2.44 | 4.95 | 4.08 | 3.85 | 3.92 |
| | 12-16 | 7.50 | 6.69 | 3.33 | 6.72 | 6.25 |
| | 16-20 | 5.88 | 5.17 | 7.25 | 4.62 | 5.65 |
| | > 20 | 1.68 | 6.70 | 5.00 | 3.95 | 4.70 |
| All Officers | | 4.72 | 5.06 | 4.43 | 3.83 | 4.62 |
| All Personnel | | 5.90 | 8.00 | 7.47 | 7.88 | 7.38 |

Table 7
Average Off-duty Income

| Years of Service | Army | Air Force | Navy | Marines | All Services |
|------------------|----------|-----------|----------|---------|--------------|
| Enlisted | | | | | |
| < 4 | 3301.00 | 1654.00 | 1358.00 | 3862.00 | 2201.00 |
| 4-8 | 1922.00 | 2459.00 | 2129.00 | 2893.00 | 2453.00 |
| 8-12 | 4701.00 | 2348.00 | 3896.00 | 3377.00 | 3408.00 |
| 12-16 | 7234.00 | 2710.00 | 3445.00 | 3376.00 | 3879.00 |
| 16-20 | 7243.00 | 4869.00 | 7585.00 | 2473.00 | 5319.00 |
| > 20 | 5630.00 | 3208.00 | 3316.00 | 1600.00 | 3476.00 |
| All Enlisted | 5099.00 | 2855.00 | 3493.00 | 3072.00 | 3403.00 |
| Officer | | | | | |
| < 4 | 5066.00 | 7838.00 | 2700.00 | 807.00 | 4846.00 |
| 4-8 | 7832.00 | 6924.00 | 3464.00 | 667.00 | 5585.00 |
| 8-12 | 10020.00 | 2274.00 | 2825.00 | 1717.00 | 3522.00 |
| 12-16 | 6939.00 | 4013.00 | 2459.00 | 3591.00 | 4686.00 |
| 16-20 | 6729.00 | 4767.00 | 4308.00 | 1608.00 | 4767.00 |
| > 20 | 5200.00 | 7412.00 | 17530.00 | 867.00 | 8565.00 |
| All Officers | 7223.00 | 5049.00 | 5271.00 | 1967.00 | 5155.00 |
| All Personnel | 5935.00 | 3511.00 | 3912.00 | 2851.00 | 3893.00 |

III. Unreimbursed Moving Expenses

Introduction

Almost every time a military family moves, the family will most likely incur moving expenses that will not be reimbursed by the government. If these out-of-pocket expenses are significant, the financial burden of these expenses may be the deciding factor whether the member will continue his/her career in the military.

In 1987, the Air Force Manpower and Personnel Center surveyed Air Force personnel who moved the previous year. Giuliano, Lyons, and Troyanowski analyzed the data from this survey to determine the average unreimbursed expense incurred by a family during a PCS move (6). This chapter presents their methodology and results. The sample studied was limited to married respondents. Also, respondents making a move from one overseas location to another overseas location were excluded from this sample because the proportion of people making this type of move is too small to analyze separately. The resulting sample had just over 500 officer and just over 700 enlisted responses.

The study investigated four categories of moving expenses -- before move, during move, after move, and automobile expenses. Government reimbursements were looked at next. Then the reimbursements were subtracted from the sum the moving expenses, resulting in out-of-pocket unreimbursed moving expenses. The unreimbursed moving

expenses were analyzed separately for three categories of moves -- CONUS to CONUS, CONUS to overseas, and overseas to CONUS. The final section of this chapter investigates the costs associated with buying and selling a house.

Before Move Expenses

The expenses that were included in the before move expense category are as follows:

1. Moving-out expenses (house/apartment cleaning, painting, etc.), excluding preparation of a home to be sold or rented.
2. Deposits lost, excluding deposits withheld for damages.
3. Cost of temporary lodging and meals from the date of packing household goods till the date of departure.
4. Mobile home preparation.
5. Pet care from the date of packing household goods to the date of departure.
6. Child care for this same period.
7. Cost of shipping household goods not shipped by the government.
8. Additional household goods insurance.
9. Car rental cost from the date of packing household goods to the date of departure.
10. Special items purchased due to conditions at the new location (voltage converters, hot/cold weather clothing, snow tires, etc.).
11. Rental of vehicles or equipment for Do-it-Yourself (DITY) moves.
12. Miscellaneous expenses.

The lodging expense was decreased by the amount of BAQ received by the member for the period of time that the family

spent in temporary quarters before the move. The meal expense was adjusted downward by the amount of BAS received during this same period time. The dollar amounts for the expenses in this category are summarized in the Unreimbursed Moving Expenses section of this chapter.

During Move Expenses

The expenses include in the during move category are as follows:

1. Cost of temporary lodging and meals from the departure day from the old duty station to the arrival day at the new duty station.
2. Toll fees.
3. Cost of gasoline and oil.
4. Transportation costs other than car expenses (bus train, airplane).
5. Car rental fees during the period of travel.
6. Pet travel expenses, excluding food.
7. Out-of-pocket mobile home transportation costs.
8. Miscellaneous expenses.

The survey did not ask the question of how many days were spent traveling from the old duty station to the new duty station. The Joint Travel Regulation allows one travel day per 350 miles for surface travel by private automobile. Assuming, the average PCS move covered one half the distance from the east coast to the west coast, the average number of travel days would be four. Using the assumption of four

travel days, the lodging and meal expenses were adjusted by four days of BAQ and BAS respectively.

After Move Expenses

The following are the expenses included in the after move category:

1. Cost of temporary lodging and meals from the date of arrival at the new duty station until the household goods delivery date.
2. Cost of vicinity travel at the new duty station to locate a new residence.
3. Moving-in expenses (curtains, paint, utility hook-up, etc.), excluding security deposits.
4. Cost of repairing or replacing damaged or lost household goods.
5. Mobile home set-up cost.
6. Pet care from arrival until delivery of household goods, excluding food.
7. Child care expenses from arrival until delivery of household goods.
8. Miscellaneous expenses.

The lodging and meal expenses were adjusted by the amount of BAQ and BAS paid to the member for the period of time that the family spent in temporary quarters after arrival at the new duty station.

Automobile Expenses

The following items constituted automobile expenses if the member moved to or from an overseas location:

1. Maintenance cost to make the automobile road-worthy for the trip.

2. Cost of special handling devices (tow bar, trailer hitch, etc.). Includes preparation cost for overseas operation, such as exhaust system modification.
3. Cost to deliver the car to the departure port.
4. Cost to pick the car up at the arrival port.
5. Cost of automobile storage if storing an automobile.

If the move was within the CONUS, only the cost of making the car road-worthy and the cost of special handling devices were included in the automobile expense category.

Reimbursements

Reimbursements by the government include the following:

1. Member travel allowance.
2. Dependent travel allowance.
3. Dislocation allowance.
4. Funds received from a DITY move.
5. Mobile home allowance.
6. Claims received from damaged or lost household goods.
7. Temporary lodging expense allowance.

Unreimbursed Moving Expenses

Out-of-pocket unreimbursed moving expenses were calculated by summing the costs for the before move, the during move, the after move, and the automobile expense categories, then subtracting government reimbursements. Table 8 shows the average moving costs and reimbursements for officer families and table 9 shows the moving costs for enlisted families. These tables are broken down into three

categories of moves -- CONUS to CONUS, CONUS to overseas, and overseas to CONUS.

Table 8
Moving Expenses and Reimbursements
for Officer Families (\$)

| Expense Category | Move Type | | |
|---------------------|-------------|----------------|----------------|
| | CONUS-CONUS | CONUS-Overseas | Overseas-CONUS |
| Before Move | 883.11 | 1106.05 | 1084.59 |
| During Move | 566.70 | 951.50 | 832.78 |
| After Move | 1627.21 | 1742.47 | 1891.09 |
| Automobile | 187.49 | 431.00 | 438.81 |
| Sub-Total | 3264.51 | 4231.02 | 4247.27 |
| Less Reimb | 1423.53 | 1487.61 | 1436.27 |
| Out-of-Pocket | 1840.98 | 2743.41 | 2811.00 |

Table 9
Moving Expenses and Reimbursements
for Enlisted Families (\$)

| Expense Category | Move Type | | |
|---------------------|-------------|----------------|----------------|
| | CONUS-CONUS | CONUS-Overseas | Overseas-CONUS |
| Before Move | 785.00 | 912.27 | 1052.70 |
| During Move | 474.37 | 616.98 | 874.63 |
| After Move | 979.15 | 1159.46 | 1524.92 |
| Automobile | 143.72 | 291.16 | 323.34 |
| Sub-Total | 2382.24 | 2979.87 | 3775.59 |
| Less Reimb | 1219.47 | 1034.10 | 1360.22 |
| Out-of-Pocket | 1162.77 | 1945.77 | 2415.37 |

For both officer and enlisted families, the after move expense category was consistently the largest category contributing to total moving expenses. As expected, moving to or from overseas locations incur greater moving costs than moving within the United States. Government reimbursements do not vary much for the different types of moves. For

officer families, the average unreimbursed moving expenses are \$1,841 for CONUS to CONUS moves, \$2,743 for Conus to overseas moves, and \$2,811 for overseas to CONUS moves. For enlisted families, the average unreimbursed moving expenses are \$1,163 of CONUS to CONUS moves, \$1,946 for CONUS to overseas moves, and \$2,415 for overseas to CONUS moves.

Cost of Buying and Selling a House

The costs associated with buying and selling a house were not included in the unreimbursed expense calculation because it was impossible to separate the investment aspects of a home purchase or sale from other considerations. However, it is interesting to look at the peripheral costs incurred when buying or selling a house.

Nine percent of the respondents sold a house at their old duty station. Selling costs (realtor fees, closing costs, and market preparation) paid by the member averaged \$3,700. On average, the selling price of the houses sold was \$8,200 greater than the purchase price.

Twenty percent of the respondents purchased houses at their new duty station. Closing costs averaged \$2,800 and there was an average required down payment of \$5,600.

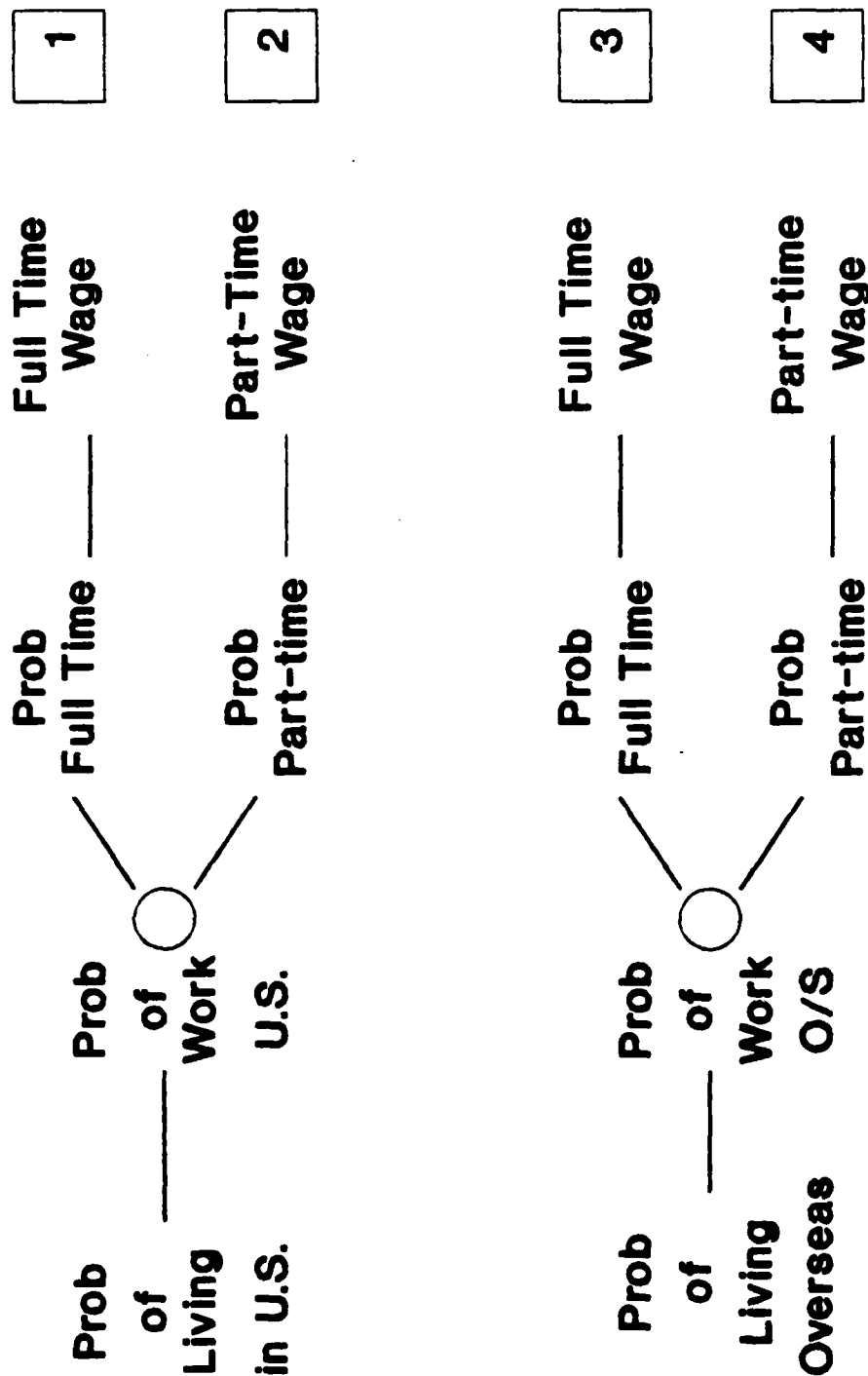
IV. Methodology

Introduction

The four components of total family income considered by this study are income earned by the wife, the member's off-duty part-time job income, unreimbursed moving expenses, and the member's military income. To answer the question of how various PCS rates affect total family income, this study compares the annuity value of the present value of the yearly family income over a 20 year military career. The number of PCS moves made by the wife are varied from 5 to 9 during a 20 year career. The annuity comparison is accomplished for officer and enlisted personnel for each of the four branches of service.

This chapter presents the methodology and the equations used to calculate each component of total family income. The methodology and the probability equations discussed in this were derived from a working paper by Giuliano, Lyons, and Troyanowski (7).² Figures 2 and 3 diagram the method used to

²These authors have studied various aspects of military mobility as it affects the income of various groups. See Lyons' thesis, The Impact of Permanent Change of Station Moves on the Family Incomes of Rated and Nonrated Air Force Officers, and Giuliano's thesis, The Impact of Permanent Change of Station Moves on Air Force Enlisted Family Income for Avionics and Non-Avionics Personnel. Their joint working paper developed estimating equations and other results which were applicable to each author's separate research.



$$\text{Expected Value of Wife's Income} = 1 + 2 + 3 + 4$$

Figure 2. Expected Value: Wife's Income for a Given Year

Prob of _____ Prob of _____ Part-Time
 Living in U.S. Work U.S. Wage
 5

Prob of _____ Prob of _____ Part-time
 Living Overseas Work Overseas Wage
 6

Expected Value of Member's Second Job Income = 5 + 6

Figure 3. Expected Value: Member's Second Job Income for a Given Year

calculate the expected value of the wife's income and the expected value of the member's second job part-time income. These two diagrams have a total of 6 branches showing the different calculations that were made to arrive at the various expected income values. Each branch of these figures and each component of the branches are discussed in detail in this chapter.

Family income was calculated for each of the 20 years in the career. In order to accomplish this task, the points in time that the family would move under the different scenarios must be known, which is the topic of the first section of this chapter.

Timing of PCS Moves

One unique feature of a military career is the high frequency of PCS moves. In this study, the number of family PCS moves is varied from 5 to 9 in order to determine the effect that moving has on family income. This study assumes equal spacing of moves throughout the 20 year career. For instance, if the family moves 5 times in 20 years, each move would occur after 48 months of time on station. The number of months on station before a move occurs for the other PCS rates considered are 40 months for 6 moves, 34 months for 7 moves, 30 months for 8 moves, and 27 months for 9 moves. Table 10 is a matrix showing when each move would occur during the 20 year career for each PCS rate. A dash (-) means that there was not a PCS move during that particular

Table 10
Move Points in the 20 Year Career

| Year | Number of Moves | | | | |
|------|-----------------|------|------|------|------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0/12 | 0/12 | 0/12 | 0/12 | 0/12 |
| 2 | - | - | - | - | - |
| 3 | - | - | 10/2 | 6/6 | 3/9 |
| 4 | - | 4/8 | - | - | - |
| 5 | 0/12 | - | - | - | 5/7 |
| 6 | - | - | 9/3 | 0/12 | - |
| 7 | - | 8/4 | - | - | 8/4 |
| 8 | - | - | - | 6/6 | - |
| 9 | 0/12 | - | 7/5 | - | 11/1 |
| 10 | - | - | - | - | - |
| 11 | - | 0/12 | - | 0/12 | - |
| 12 | - | - | 5/7 | - | 1/11 |
| 13 | 0/12 | - | - | 6/6 | - |
| 14 | - | 4/8 | - | - | 4/8 |
| 15 | - | - | 4/8 | - | - |
| 16 | - | - | - | 0/12 | 7/5 |
| 17 | 0/12 | 8/4 | - | - | - |
| 18 | - | - | 2/10 | 6/6 | 9/3 |
| 19 | - | - | - | - | - |
| 20 | - | - | - | - | - |

year. A PCS move occurs in the year where a set of numbers appears in an element under the number of moves column.

The first number in the element is the number of months spent at the old duty station before the PCS move occurred. The second number in the number of months at the new duty station during that year. Since the move points are now known, the methods and equations used to calculate the expected income values are discussed next.

Wife's Income

The first component of family income is income earned by the wife. The wife's work force participation rate and the amount of income earned are dependent on whether the wife

is located in the CONUS or overseas. Therefore, wife's income was calculated separately depending on whether the wife was overseas. Branches 1 and 2 of Figure 2 show the components of the wife's expected income when she lives in the United States. Branches 3 and 4 show the components of the wife's expected income when she lives overseas. The wife's expected income when living stateside is considered first.

Wife's Income - CONUS. Branches 1 and 2 of Figure 2 depict the components used to calculate the expected value of the wife's earnings when living in the United States. The specific equation to calculate this expected value is as follows:

$$\begin{aligned} \text{Expected Wife's Income (CONUS)} = & \text{Probability of Living} \\ & \text{in US} * \text{Probability of Working (CONUS)} * \\ & \text{Probability of Working Full Time} * \text{Full Time Income} \\ & + \text{Probability of Living in US} * \text{Probability of} \\ & \text{Working} * \text{Probability of Working Part-time} * \\ & \text{Part-time Income} \end{aligned}$$

Each component of this equation is explained in detail in the following sub-sections.

Probability of Living and Working in the CONUS.

The first element in branches 1 and 2 is the probability of the wife living in the United States. In calculating the expected value of the wife's income, the probability of living in the United States was set to be equal to the actual percentage of wives living stateside.

The second component in the CONUS expected wife's earnings equation is the probability of working. A

dichotomous variable was used to indicate whether the wife works. Equations with a dichotomous dependent variable (zero or one) have problems with heteroscedasticity (unequal variance of the residuals) and the residuals are not normally distributed. One solution to overcome these problems is to transform the equation so the error terms follow the logistic distribution and then estimate the equation using the maximum likelihood method (12:16).

The maximum likelihood method was used to derive an equation predicting whether the wife works when stationed stateside. The resulting equation is presented in Table 11.

Table 11
Maximum Likelihood Logit Equation
of Wife Working in the US

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -3.349330 | 205.14 | .0001 |
| SAGE | 0.048757 | 82.22 | .0001 |
| SSCHOOL | 0.158028 | 154.99 | .0001 |
| OVERSEAS | 0.031554 | 9.39 | .0022 |
| SBOONIES | -0.248617 | 10.21 | .0014 |
| BLACK | 0.404734 | 11.29 | .0008 |
| SMONTHS | 0.015379 | 163.72 | .0001 |
| MTOTDEBT | 0.175508 | 151.85 | .0001 |
| LESS15 | -0.260527 | 38.34 | .0001 |
| KIDS | -0.151704 | 12.65 | .0004 |
| HUSBAND | -0.378361 | 14.87 | .0001 |
| MILINC | -0.000034 | 109.96 | .0001 |
| MCIVERNS | 0.000023 | 3.40 | .0654 |
| MNONWAGE | 0.00000098 | 0.03 | .8533 |

The dependent variable is dichotomous, taking on the value of one if the wife is working either full time or part-time. "SAGE" (spouse age) is very significant. "SSCHOOL"

(number of years of school) has the expected positive impact on the probability of working and are very significant.

"OVERSEAS" is the number of months the wife has spent overseas while married to her husband. The race variable

"BLACK" indicates that blacks are more likely to work.

"SBOONIES" is a dummy variable which takes on the value of 1 if the spouse rated the distance to population centers from where she lives as poor or very poor. "SMONTHS" (number of months the spouse has been at the present location) has the expected positive impact on whether the wife works.

"MTOTDEBT" is the amount of non-mortgage debt accumulated by the family. The greater the amount of debt, the greater the likelihood of the wife working. "LESS15" (number of children under the age of 15) and "KIDS" (total number of children) have the expected negative impacts on the likelihood of working. "HUSBAND" is a dichotomous variable taking on the value of one if the wife is presently living where her husband is stationed. "MILINC" is the amount of military income received by the member. "MCIVERNS" is the annual income earned by the member if he has an off-duty part-time job. "MNONWAGE" (amount of non-wage income received by the family) is insignificant.

The following equation was used to convert the results from the logit equation into a predicted probability (12:25):

$$P = \frac{\exp(B'X)}{1 + \exp(B'X)}$$

Where P is the probability, B'X is the result of vector multiplication between the transpose of the parameter value vector and the independent variable vector.

The probability of the wife working in the United States was calculated for each of the 20 years in the career for two groups -- enlisted wives and officer wives. The values for the independent variables were determined for each of the 20 years in order to calculate the probabilities. The values for "BLACK" and "HUSBAND" were determined by taking the overall mean of the variable. These two variables were held constant throughout the 20 years. The average age of the wives at the time when the member entered the military became the value of "SAGE" at year 1. The wife's age was increased by one for each succeeding year. "SSCHOOL" was held constant at the average number of years to school attained by the wives of husbands having one year or less in the service. This was done because the amount of education attained by the wife since her marriage was not known. The value for "SMONTHS" (number of months at the present location) was determined by taking the average of the values for this variable at the beginning and at the end of the year. For instance, "SMONTHS" for the second year on station has a beginning value of 13 and an ending value of 24 resulting in average of 18. If a move occurred in the middle of a year, a weighted average was taken for the different values of "SMONTHS" recorded at the two locations for that year. The

remaining variables were varied in accordance with the mean value of that variable for those members that served the corresponding number of years in the service.

Table 12 shows the probability of officer wives working each year during the 20 year career for each of the 5 PCS rates. As the number of PCS moves increases over the 20 year time span, the overall probability officer wives working decreases. At the time a PCS move occurs, the probability of the wife working decreases between 20 and 30 percent. The result of a separate study (the Air Force PCS Survey) show that the average time the wife was out of the work force due to PCS moves was about 3 months.

Table 12
Probability of Wife Working - CONUS
Officer Wives

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.401 | 0.401 | 0.401 | 0.401 | 0.401 |
| 2 | 0.556 | 0.556 | 0.556 | 0.556 | 0.556 |
| 3 | 0.583 | 0.583 | 0.565 | 0.526 | 0.506 |
| 4 | 0.577 | 0.475 | 0.447 | 0.463 | 0.474 |
| 5 | 0.424 | 0.454 | 0.477 | 0.493 | 0.446 |
| 6 | 0.442 | 0.472 | 0.389 | 0.397 | 0.423 |
| 7 | 0.486 | 0.466 | 0.407 | 0.440 | 0.433 |
| 8 | 0.518 | 0.396 | 0.437 | 0.415 | 0.396 |
| 9 | 0.370 | 0.429 | 0.417 | 0.392 | 0.421 |
| 10 | 0.404 | 0.464 | 0.378 | 0.426 | 0.364 |
| 11 | 0.433 | 0.346 | 0.407 | 0.346 | 0.392 |
| 12 | 0.495 | 0.404 | 0.395 | 0.404 | 0.365 |
| 13 | 0.344 | 0.431 | 0.368 | 0.376 | 0.383 |
| 14 | 0.375 | 0.365 | 0.400 | 0.353 | 0.350 |
| 15 | 0.447 | 0.387 | 0.386 | 0.424 | 0.387 |
| 16 | 0.486 | 0.425 | 0.380 | 0.352 | 0.383 |
| 17 | 0.369 | 0.438 | 0.443 | 0.413 | 0.387 |
| 18 | 0.428 | 0.398 | 0.398 | 0.417 | 0.422 |
| 19 | 0.489 | 0.458 | 0.435 | 0.420 | 0.409 |
| 20 | 0.574 | 0.543 | 0.521 | 0.505 | 0.494 |
| Average | 0.460 | 0.445 | 0.430 | 0.426 | 0.420 |

These patterns existing in the probability of officer wives working are also evident in the probability of enlisted wives working. The enlisted wives' probability of working figures are contained in Appendix A. Appendix A also contains tables showing the intermediate calculations to arrive at the probability of working for both officer and enlisted wives.

Probability of Working Full Time - CONUS. The third factor in the expected value of wife's income in the United States is the probability of working full time. The maximum likelihood method using the same variables as the probability of working logit equation was used to derive an equation for the probability of working full time. The sample used included those wives in the United States working either part-time or full time.

Table 13 contains the resulting maximum likelihood equation. The variables "OVERSEAS", "SBOONIES", "HUSBAND", "MCIVERNS", and "MNONWAGE" are all insignificant. The older the wife and the more years of school attained increases the likelihood of her working full time. Blacks are more likely to work full time. The longer the wife has been at a particular location the more likely she is going to work full time. Children, especially children under the age of 15, decrease the likelihood of the wife working full time. The greater the military income earned by a member, the less likely the wife is going to work full time.

Table 13
Maximum Likelihood Logit Equation
of Wife Working Full Time in the US

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -1.181090 | 13.06 | .0003 |
| SAGE | 0.039691 | 24.90 | .0001 |
| SSCHOOL | 0.050326 | 8.15 | .0043 |
| OVERSEAS | 0.008615 | 0.43 | .5100 |
| SBOONIES | -0.007581 | 0.00 | .9482 |
| BLACK | 0.369703 | 5.52 | .0188 |
| SMONTHS | 0.007424 | 22.32 | .0001 |
| MTOTDEBT | 0.143961 | 49.09 | .0001 |
| LESS15 | -0.338280 | 32.43 | .0001 |
| KIDS | -0.128266 | 4.35 | .0376 |
| HUSBAND | -0.180887 | 2.02 | .1548 |
| MILINC | -0.000035 | 52.56 | .0001 |
| MCIVERNS | 0.000018 | 1.22 | .2692 |
| MNONWAGE | -0.00000022 | 0.10 | .7506 |

The calculation of the probability of the wife working full time was accomplished in the same manner as calculating the probability of working. The results and intermediate calculations are contained in Appendix B.

Wife's Full Time Income - CONUS. The next element of the expected value equation for the wife's income if stationed in the United States is her full time income.

Using the same data from the 1985 Member and Spouse Surveys, Gill, Haurin and Phillips derived a wage equation for military wives working full time in the United States. Their equation is presented in Table 14.

The dependent variable is the natural logarithm of the wife's weekly wage. "AGE" and "EDUCATION" (measured in number of years of school attended) have positive impacts

Table 14
Equation for Wife's Full Time Weekly Wage

Dependent Variable: Log of Wife's Weekly Wage
Sample Size: 457
Adjusted R-Square: .3308

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>t</u> | <u>Prob > t</u> |
|-----------------|---------------------------|----------|--------------------|
| INTERCEPT | 3.90330 | 26.423 | .0001 |
| AGE | 0.02581 | 6.382 | .0001 |
| EDUCATION | 0.05714 | 7.586 | .0001 |
| TENURE | 0.00116 | 2.299 | .0220 |
| EDUC*SKILL | 0.01436 | 6.064 | .0001 |
| SOVERSEAS | -0.01021 | -1.318 | .1882 |
| BOONIES | -0.04960 | -1.005 | .3154 |
| BLACK | -0.08724 | -1.232 | .2187 |
| ASIAN | -0.10159 | -1.774 | .0767 |
| MILLS | 0.10001 | 1.814 | .0704 |
| WMOVES | -0.02978 | -3.139 | .0018 |

Source (5:11)

upon income and are very significant. "TENURE" measures the number of months employed in the present job. The positive relationship between "TENURE" and income is expected.

"EDUC*SKILL" is an interaction variable between years of education and the degree to which the wife's job utilizes her skills as viewed by the respondent. The significant positive coefficient says that the return in the form of wages from investment in education is greater when the job makes use of that education. The variable "SOVERSEAS" measures the number of months the wife has spent overseas. "BOONIES" is a dummy variable which takes on the value of 1 if the respondent thought that the distance to population centers was poor or very poor. Both "SOVERSEAS" and "BOONIES" are insignificant. The race variable "BLACK" is insignificant, but "ASIAN" is

significant at the 10 percent level. Asian wives may experience language and cultural difficulties in securing higher paying jobs. The "MILLS" variable is a correction term for self-selection bias as suggested by Heckman (11:153). This correction accounts for the fact that women who possess greater knowledge, skills, and abilities are more likely to work and have a greater wage than women who do not work. The last variable "WMOVES" is the number of PCS moves made by the wife. The highly significant "WMOVES" coefficient implies that each PCS move decrease the wife's wage by approximately 3 percent (5:12). This impact on the wife's wage from PCS moves plus the impact on wages from the loss of tenure that accompanies a move show that the high mobility of military families has a serious negative impact on the wages of the wife.

This equation was used to calculate the wife's full time annual wage for each year of the 20 year career in the United States for eight groups -- officer and enlisted wives for each of the services. First, the values for the independent variables were determined. The values for "BLACK" and "ASIAN" were held constant throughout the 20 years at their mean value for each of the eight groups. "AGE" and "EDUCATION" were handled the same way as "SAGE" and "SSCHOOL" were handled in the probability of working equation. The number of moves ("WMOVES") started at one for year 1 and was increased by one when a move occurred. If a move occurred in

the middle of a year, a weighted average was taken based on the proportion of the year spent at the old station and the new station. The values for "SKILL", "SOVERSEAS", and "BOONIES" were varied with the mean values of these variables for the sample whose husbands served the corresponding number of years in the service. The value for "EDUC*SKILL" was the product of "SKILL" and "EDUCATION". The "MILLS" variable is omitted when predicting the dependent variable (11:153).

The values for "TENURE" were estimated indirectly. Separate regression equations were derived to estimate tenure for officer wives and enlisted wives. The equations are as follows:

$$OWTENURE = -6.0551 + 7.3412*(LT12) + 0.5337*(SMONTHS)$$

$$EWTENURE = -7.6753 + 5.5967*(LT12) + 0.5786*(SMONTHS)$$

Where "OWTENURE" and "EWTENURE" are officer wives' tenure and enlisted wives' tenure respectively. Tenure is measured in months. "LT12" is a dummy variable which has the value of 1 if the couple has been married for less than 1 year. This variable accounts for the wives who have a greater number of tenure months than months of marriage. This may happen if the wife was already living in the local area when she married her husband. "SMONTHS" is the same variable as in the probability equations and was handled in the same manner. "LT12" used the mean values for each of the year groups. The

resulting values from these equations became the input values for "TENURE" in the full time wage equation.

The resulting independent variable values were multiplied by the parameter estimate for the corresponding variable. Then, the sum of these products was taken. This result represents the natural logarithm of the wife's weekly wage. Next, the anti-log was taken. Lastly, the anti-log was multiplied by 52 to arrive at the wife's annual full time income in the United States. This procedure was repeated for each of the 20 years. The full time income results and intermediate calculations are contained in Appendix C.

The expected value of wife's full time annual income (branch 1 of Figure 2) is the product of the probability of living in the United States, the probability of working, the probability of working full time, and the full time income.

Expected Value of Part-time Income - CONUS. The expected value of the wife's part-time income (branch 2 of Figure 2) is the product of the probability of living in the United States, the probability of working, the probability of working part-time, and her part-time income. The probabilities of working and living in the CONUS are the same probabilities presented previously in the full time income section. The probability of working part-time is one minus the probability of working full time. An equation to predict part-time income could not be derived because the number of hours worked at a part-time job was not known.

Instead, the median weekly part-time income of \$106 was used in the expected income equation.

Expected Wife's Income - CONUS. The expected value of the wife's income in the United States is the sum of the expected values for the wife's full time income and part-time income. This completes the discussion of branches 1 and 2 of Figure 2.

Wife's Income - Overseas. The other major classification of wife's earnings is her expected income when stationed overseas. Branches 3 and 4 of Figure 2 depict the components used to calculate the expected value of the wife's earnings when living overseas. The specific equation to calculate this expected value is as follows:

$$\begin{aligned} \text{Expected Wife's Income (Overseas)} = & \text{Probability of} \\ & \text{Living Overseas} * \text{Probability of Working (O/S)} * \\ & \text{Probability of Working Full Time (O/S)} * \text{Full Time} \\ & \text{Income (O/S)} + \text{Probability of Living Overseas} * \\ & \text{Probability of Working (O/S)} * \text{Probability of} \\ & \text{Working Part-time (O/S)} * \text{Part-time Income (O/S)} \end{aligned}$$

The probability of living overseas was to be equal to the actual percentage of wives living overseas, which is equal to 1 minus the probability of living in the United States. Each of the other components in this equation is explained in detail in the following sections.

Probability of Working - Overseas. The maximum likelihood method was used to derive an equation predicting whether the wife works when living overseas. This equation contains the same variables as the CONUS probability of

working equation. Table 15 presents the resulting likelihood equation.

Table 15
Maximum Likelihood Logit Equation
of Wife Working Overseas

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -4.907090 | 41.21 | .0001 |
| SAGE | 0.039874 | 9.76 | .0018 |
| SSCHOOL | 0.240546 | 47.24 | .0001 |
| OVERSEAS | 0.027127 | 1.65 | .1985 |
| SBOONIES | -0.055697 | 0.06 | .8056 |
| BLACK | 1.001600 | 14.54 | .0001 |
| SMONTHS | 0.019111 | 17.44 | .0001 |
| MTOTDEBT | 0.133412 | 13.48 | .0002 |
| LESS15 | -0.206083 | 3.83 | .0504 |
| KIDS | -0.145992 | 2.11 | .1466 |
| HUSBAND | 0.307544 | 0.41 | .5213 |
| MILINC | -0.000041 | 21.85 | .0001 |
| MCIVERNS | 0.000034 | 0.84 | .3582 |
| MNONWAGE | 0.000020 | 1.88 | .1708 |

The signs on the parameter estimates are same as the CONUS equation except for the variables "SBOONIES" and "HUSBAND". However, these two variables are now insignificant. The number of wives living overseas and not co-located with their husbands is very small, which accounts for the insignificance of this variable. Since most working wives work on base when living overseas, the distance to population centers is not a factor influencing whether the wife works. The variables "OVERSEAS", "KIDS", and "MCIVERNS" also became insignificant at the 10 percent level of significance.

The probability of the wife working when stationed overseas was calculated in the same manner as the probability of working in the CONUS. The results are contained in Appendix D.

Probability of Working Full Time - Overseas. Once again, the maximum likelihood method was used to derive an equation estimating the likelihood of the wife working full time when living overseas. Table 16 presents this equation.

When compared to the CONUS equation for the likelihood of working full time, three additional variables become insignificant -- "SAGE", "LESS15", and "KIDS". The significant variables in both equations have the same signs on the parameter estimates.

The results from the probability calculations are contained in Appendix E.

Table 16
Maximum Likelihood Logit Equation
of Wife Working Full Time Overseas

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -1.979150 | 2.89 | .0892 |
| SAGE | 0.019905 | 1.02 | .3123 |
| SSCHOOL | 0.154497 | 9.05 | .0026 |
| OVERSEAS | -0.030893 | 0.94 | .3332 |
| SBOONIES | 0.064783 | 0.03 | .8519 |
| BLACK | 0.638407 | 3.38 | .0659 |
| SMONTHS | 0.011756 | 2.84 | .0917 |
| MTOTDEBT | 0.135327 | 6.55 | .0105 |
| LESS15 | -0.225603 | 1.91 | .1671 |
| KIDS | -0.074205 | 0.23 | .6314 |
| HUSBAND | -0.103391 | 0.02 | .8892 |
| MILINC | -0.000042 | 8.44 | .0037 |
| MCIVERNS | 0.000013 | 1.93 | .1651 |
| MNONWAGE | 0.000050 | 2.93 | .0869 |

Full Time Income - Overseas. Attempts to derive a regression equation to predict overseas full time income for the wife failed. Instead, the median overseas weekly full time income of \$256 was used in the expected value equation.

The expected value of the wife's full time annual income (branch 3 of Figure 2) is the product of the probability of living overseas, the probability of working, the probability of working full time, and the full time income.

Expected Part-time Income - Overseas. The expected value of the wife's part-time income when living overseas (branch 4 of Figure 2) is the product of probability of living overseas, the probability of working, the probability of working part-time, and her part-time income. The overseas probability of working part-time is one minus the overseas probability of working full time. The overseas median weekly income of \$123 was used in the wife's expected income equation.

Expected Wife's Income - Overseas. The overseas expected value of the wife's income is the sum on the overseas full time and part-time expected incomes. This concludes the discussion of branches 3 and 4 of Figure 2.

Member's Off-duty Job Income

The second component of military family income in the income earned by the member from a part-time job. The expected income from the member's second job was calculated separately depending on whether the member is stationed

overseas. Branches 5 and 6 of Figure 3 show the components of the expected value of the member's second job income depending on whether he is stationed stateside or overseas. The member's second job income when stationed in the United States is discussed first.

Member's Second Job Expected Income - CONUS. Branch 5 of Figure 3 depicts the components used to calculate the expected value of the member's second job income when stationed stateside. The stateside expected value of the member's second job is equal to the probability of being stationed stateside times the probability of working part-time (CONUS) times his part-time income (CONUS). The probability of being stationed stateside was set to be equal to the actual percentage of the members stationed stateside. The other components of this equation are discussed in the following sub-sections.

Probability of Working Off-duty - CONUS. Separate maximum likelihood equations for officer and enlisted personnel were derived to predict whether the member works during his off-duty time. Table 17 contains the officer and enlisted likelihood equations.

"MMONTHS" (number of months at the current station) is significant in both equations and has the expected positive impact on the probability of working. "BOONIES" is significant in the officer equation, but it is insignificant in the enlisted equation. This indicates that the type of

Table 17
Maximum Likelihood Logit Equation
for Members Working Part-time CONUS

A. Officers

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -3.058480 | 3.21 | .0731 |
| MMONTHS | 0.009920 | 3.95 | .0468 |
| BOONIES | 0.360505 | 2.95 | .0860 |
| MNONWAGE | 2.3E-05 | 5.83 | .0158 |
| MTOTDEBT | 0.094174 | 5.03 | .0250 |
| MILINC | 1.9E-05 | 1.51 | .2194 |
| SEPARATE | -0.114341 | 10.47 | .0012 |
| MRANK | -0.079964 | 0.41 | .5195 |
| KIDS | 0.154551 | 4.71 | .0301 |

B. Enlisted Personnel

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>Chi- Square</u> | <u>Prob</u> |
|-----------------|-------------------------------|------------------------|-------------|
| INTERCEPT | -2.952150 | 117.64 | .0001 |
| MMONTHS | 0.006738 | 6.56 | .0104 |
| BOONIES | -0.062742 | 0.18 | .6708 |
| MNONWAGE | -2.7E-07 | 0.00 | .9848 |
| MTOTDEBT | 0.174797 | 23.90 | .0001 |
| MILINC | -7.9E-05 | 9.45 | .0021 |
| SEPARATE | -0.017579 | 1.18 | .2764 |
| MRANK | 0.145812 | 3.52 | .0607 |
| KIDS | 0.130142 | 7.34 | .0067 |

second jobs that officers work at are located closer to larger cities. Non-wage income is significant for officer, but it is not significant for enlisted personnel. "MTOTDEBT" has the expected positive impact on the probability of working. "MILINC" is significant in the enlisted equation, but it is insignificant in the officer equation. Junior enlisted personnel with a small military income may need the income from a second job to meet living expenses. "SEPARATE"

is the number of months the member was separated from his wife due to temporary duty, deployment, sea duty, etc. during the previous year. This variable is only significant for officers. The rank of the member is only significant for enlisted personnel. The number of children is significant for both groups.

The methodology used to calculate the probability of the member working a second job was the same as the methodology used to calculate the other probabilities. The results are contained in Appendix F.

Part-time Job Income - CONUS. Median incomes were used in the calculation of the member's second job income equation for the CONUS. The CONUS median income is \$1,950 for officers and \$1,700 for enlisted personnel.

These median incomes were multiplied by the probability of working off-duty and the probability of being stationed in the United States to arrive at the expected value of the member's second job income when stationed stateside.

Member's Second Job Expected Income - Overseas. Branch 6 of Figure 3 shows the components used to calculate the expected value of the member's second job income when stationed overseas. The overseas expected value of the member's second job is equal to the probability of being stationed overseas times the probability of working part-time (overseas) times his part-time income (overseas). The probability of being stationed overseas was set equal to the

actual percentage on the members stationed overseas, which is also equal to one minus the probability of being stationed stateside. The other components of this equation are discussed in the following sub-sections.

Probability of Working Off-duty - Overseas. The maximum likelihood method failed to provide usable equations to predict whether the member works at a second job when stationed overseas because of the small sample size. Instead, the difference between the predicted CONUS probability for a particular year and the percent of the members working in the CONUS for the entire sample was used as the marginal difference between the percent working overseas the probability of working overseas for that year. Specifically, the member's probability of working overseas equals the member's predicted probability of working stateside minus the difference in the actual percentages of the member's working CONUS and overseas. For example, assume that the overall percentage of members working part-time in the CONUS is 5 percent and the percent working part-time overseas is 4 percent: if the predicted probability of working in the CONUS for a particular year was 6 percent, then the probability of working overseas for that year would be $[6 - (5 - 4)]$ or 5 percent.

Part-time Job Income - Overseas. Median incomes were used to calculate the expected value of the overseas

off-duty job income. The median overseas part-time income is \$2,700 for officers and \$2,088 for enlisted personnel.

These median income figures were multiplied by the probability of being stationed overseas and the probability of working a second job when stationed overseas to arrive at the overseas expected value of the member's second job income. The sum of the CONUS and overseas expected values of the member's second job income constitutes the member's second job income contribution to total income for the military family.

Unreimbursed Moving Expenses

The third component affecting total family income is the unreimbursed out-of-pocket expenses resulting from a PCS move. The average unreimbursed moving expenses for different types of moves were calculated in Chapter III for Air Force officer and enlisted personnel. Assuming that the members of the other services experience the same type of moving costs and reimbursements, the Air Force unreimbursed moving expenses should be representative for the other services. The Air Force unreimbursed moving expenses were used for the other services in calculating their unreimbursed moving expenses.

The equation to calculate the expected value of out-of-pocket moving expenses is as follows:

$$EV(OOP) = CUMC * \%MC + OSUMC * \%MOS$$

CUMC is the unreimbursed moving cost for CONUS to CONUS moves. %MC is the percent of the members stationed stateside. It was assumed that the percentage of CONUS to CONUS moves was equal to the percent of the sample currently stationed stateside. OSUMC is the average of the unreimbursed moving costs for CONUS to overseas moves and overseas to CONUS moves. The percentage of these two types of moves should be approximately equal if the number of people stationed overseas remains constant. %MOS is the percent of the sample stationed overseas which is equal to one minus the percent stationed stateside.

This equation was used to calculate the expected value of unreimbursed moving expenses during the years when a PCS move took place. The result was subtracted from the total family income. Unreimbursed moving expenses category was set to zero during the years when a move did not occur.

Value of Military Income

The fourth and final component of total military family income is the military income received by the member. Using Gill's regression equations for officer income and enlisted income (5:15,17), officer and enlisted military income was calculated for each year in the 20 year career using these equations. The present value for each expected yearly income was calculated using a 3 percent discount rate. A 3 percent discount rate was chosen as an estimate of the future rate of

return net of inflation. The present value concept accounts for the time value of money. The present value sum represents the amount of money that is needed today to make the expected military income payments in the 20 year career. Then, an annuity was calculated from the sum of the 20 yearly present value income figures. The annuity restates the present value of the future military income stream in terms of 20 equal annual payments. Appendix G contains the regression equations, the input values for the independent variables, and the predicted military income by year. The resulting annuities are contained in Table 18.

Table 18
Twenty Year Military Annuity

| <u>Service</u> | <u>Officer</u> | <u>Enlisted</u> |
|----------------|----------------|-----------------|
| Air Force | 36,617 | 21,926 |
| Army | 35,474 | 21,848 |
| Navy | 37,557 | 22,906 |
| Marines | 35,734 | 22,061 |

The annuity value of military income for officers ranges from \$35,557 for the Navy to \$35,474 for the Army. The enlisted military income annuity ranges from \$22,906 for the Navy to \$21,848 for the Army. The expected value of military income is greater for Navy personnel because a greater percentage of Navy personnel receive special pay, mainly sea duty pay.

The next chapter calculates the expected family income by summing the four components of income presented in this chapter.

V. Results

Introduction

This chapter presents the results of calculating the expected total family income for the different number of PCS moves in a 20 year career. The results are presented in the form of an annuity for officer and enlisted personnel for each of the services. After this, the results from two sensitivity analyses are presented. The sensitivity analyses computed total family income if all wives worked full time and if all wives worked part-time.

Total Family Income

In this study, expected total family income is defined as the expected military income plus the expected wife's income plus the member's expected second job income minus unreimbursed moving expenses. Family income was calculated for each year in the 20 year career using this formula. The present value for each expected yearly income was calculated using a 3 percent discount rate. A 3 percent discount rate was chosen as an estimate of the future rate of return net of inflation. The present value concept accounts for the time value of money. The present value sum represents the amount of money that is needed today to make the expected income payments in the 20 year military career. Then, an annuity was calculated from the sum of the 20 yearly present value income figures. The annuity restates the present value of

the future income stream in terms of 20 equal annual payments. Tables listing the expected total family income are contained in Appendix H. The following sub-sections discuss how family income varies as the number of PCS moves in 20 years increases for each of the services.

Air Force Family Income. Figure 4 shows the expected Air Force officer and enlisted family income annuities for the different number of PCS moves (5 through 9) in a 20 year career. Air Force officer expected family income drops from \$40,474 per year with 5 PCS moves to \$39,483 per year with 9 PCS moves. Each additional move made in the 20 year career decreases the expected family income for Air Force officers by an average of \$248 per year.

The expected total annual income for Air Force enlisted families ranges from \$25,553 at 5 PCS moves to \$24,737 at 9 PCS moves. The average annual decrease in family income is \$204 with each increment in the number of PCS moves.

Army Family Income. Figure 5 depicts the expected family income annuity for Navy officer and enlisted families when 5, 6, 7, 8, and 9 PCS moves are made in a career. Expected Army officer income decreases from \$39,311 per year at 5 PCS moves to \$38,309 per year at 9 PCS moves. The average decrease in annual income is \$251 with each additional move in the 20 years.

Army enlisted family income ranges from \$25,517 per year with 5 PCS moves to \$24,661 per year with 9 PCS moves. On

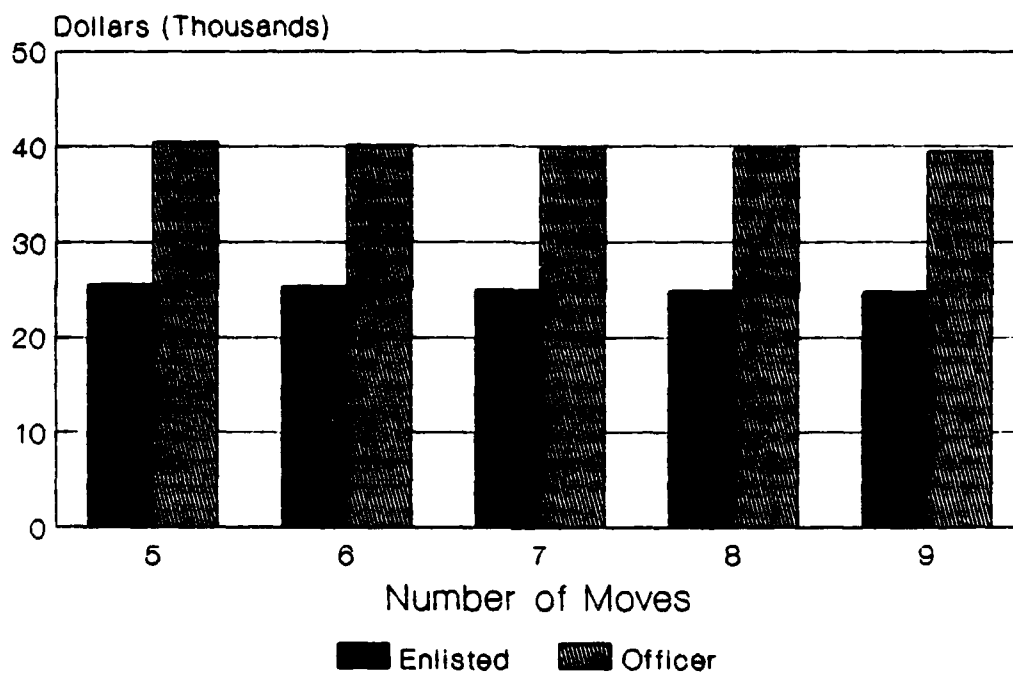


Figure 4. Total Family Income Annuity - Air Force

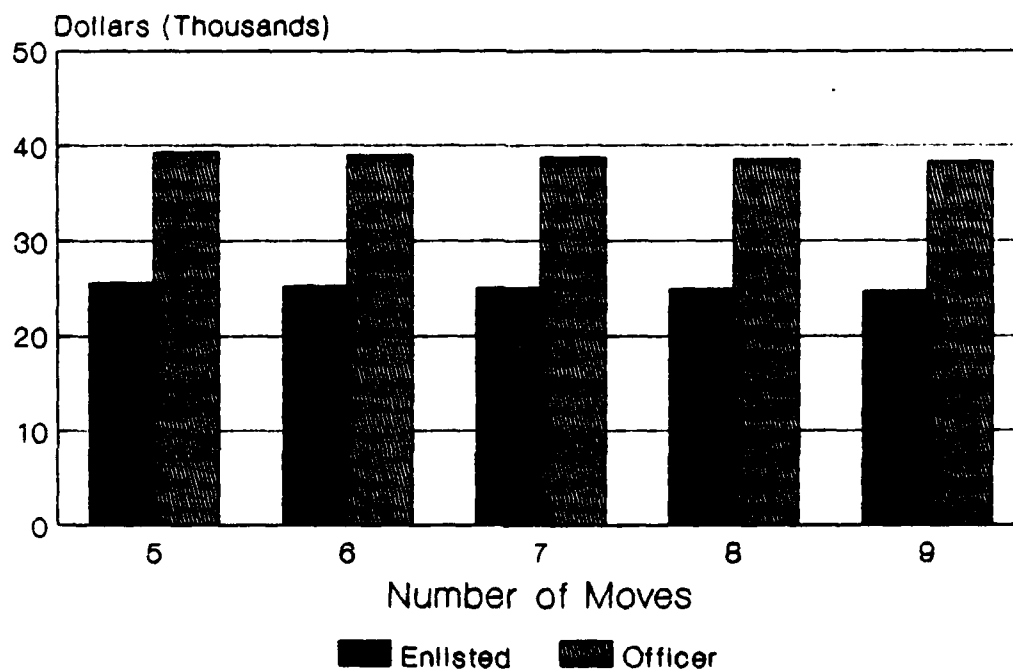


Figure 5. Total Family Income Annuity - Army

average, the Army enlisted family is expected to lose \$214 in annual income with each additional PCS move made within the 20 year career.

Navy Family Income. Figure 6 shows how the expected Navy officer and enlisted family income annuity decreases as the number of PCS moves in a 20 year career increases. The expected annual income for Navy officer families drops from \$41,302 at 5 PCS moves to \$40,341 at 9 PCS moves. The average decrease in Navy officer family annual income is \$240 with each additional PCS move in a 20 year career.

The expected annual income for Navy enlisted families ranges from \$26,656 at 5 PCS moves to \$25,841 at 9 moves. On average, the Navy enlisted family is expected to lose \$204 in annual family income with each additional PCS move in a career.

Marine Family Income. Figure 7 presents how the Marine officer and enlisted family income annuities decrease as the number of PCS moves in a 20 year career increases. Expected Marine officer family income decreases from \$39,463 per year with 5 PCS moves to \$38,516 per year with 9 PCS moves. Each additional PCS move made in a 20 year career decreases the expected Marine officer family income by an average of \$237 per year.

The expected Marine enlisted family income ranges from \$25,623 to \$24,858 per year at 5 and 9 PCS moves in 20 years, respectively. The average decrease in annual family income

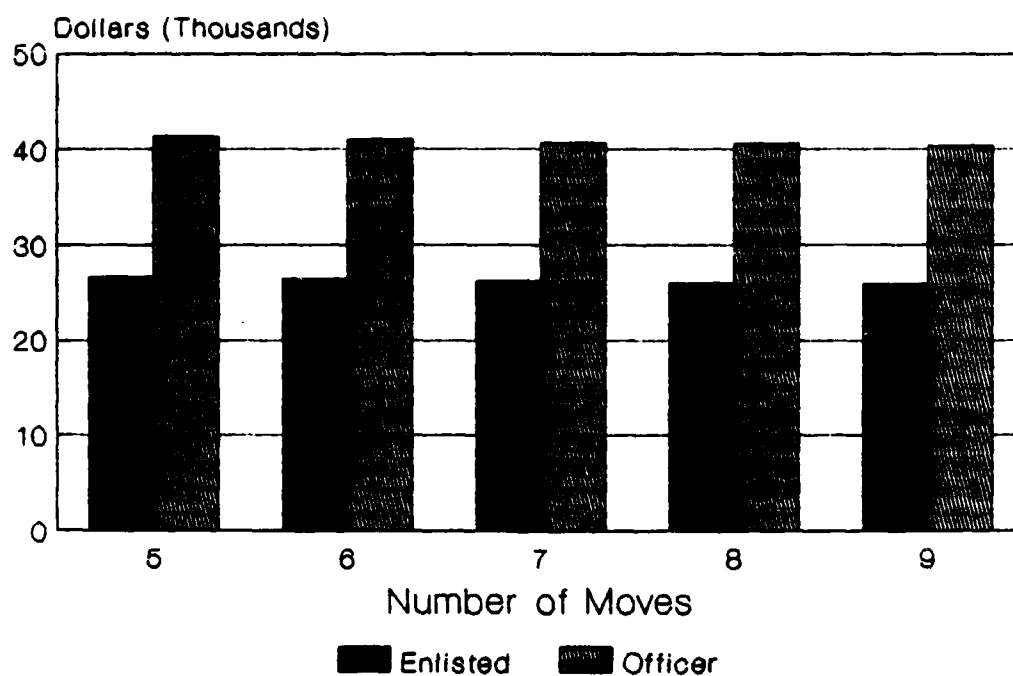


Figure 6. Total Family Income Annuity - Navy

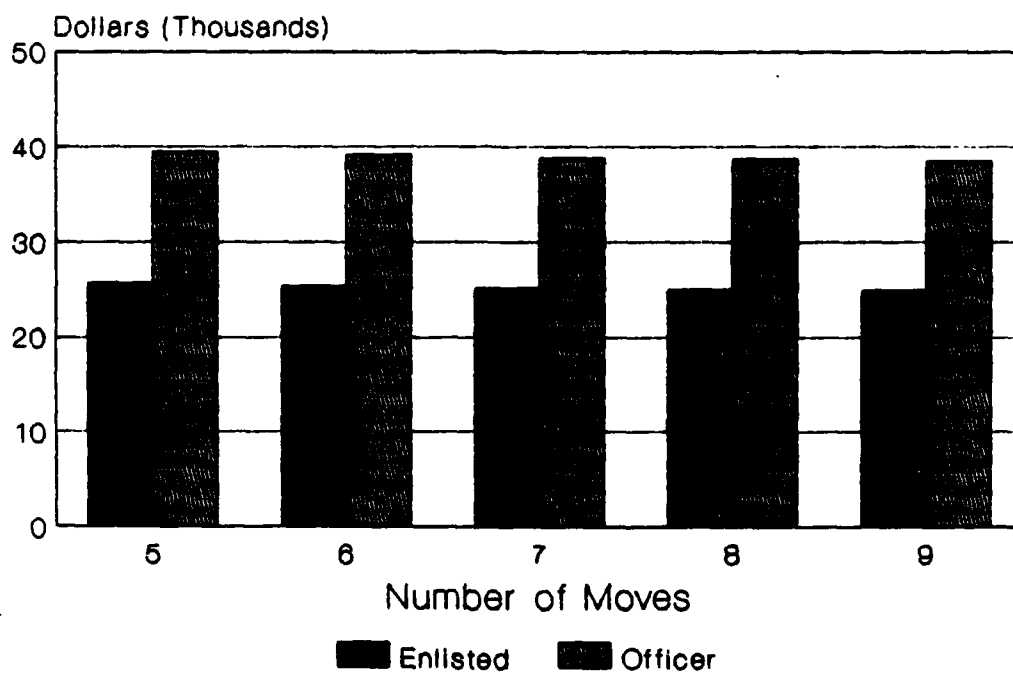


Figure 7. Total Family Income Annuity - Marines

is \$191 with each additional move in the 20 year career for Marine enlisted families.

Comparison of Results. Table 19 summarizes the average decrease in the income annuity as the number of PCS moves in a 20 year career was incremented from 5 to 9. Since military income is not affected by PCS moves, the changes in the annuity values are the result of changes in the other components of family income -- the wife's income, the member's second job income, and unreimbursed moving expenses.

Table 19
Average Decrease in Annual Income Annuity per Move

| <u>Service</u> | <u>Officer</u> | <u>Enlisted</u> |
|----------------|----------------|-----------------|
| Air Force | 248 | 204 |
| Army | 251 | 214 |
| Navy | 240 | 204 |
| Marines | 237 | 191 |

These changes in family income annuities may seem small for two reasons. First, these annuities measure the average impact of mobility on income for all families. But, only about 50 percent of the spouses work and less than 10 percent of the members work a second job. For families that have these sources of income, the impact of mobility is greater than what is indicated here. Second, taking the present value of future income reduces the impact of future changes in income that occur later in the career. For instance, the undiscounted value of total family income over the 20 year career drops by nearly \$7,000 when the number of moves increases from 5 to 6.

Increasing the frequency of PCS moves has a greater negative impact on the expected income for officer families than for enlisted families. Since officer wives hold jobs that pay a greater salary than enlisted wives, the impact on income from PCS moves through the loss of tenure is greater for officer wives. Officer families also have greater out-of-pocket moving expenses than enlisted families.

Army families (officer and enlisted) incur a larger loss of income than the other services with each increment in the number of PCS moves. A greater percentage of Army wives live overseas than the other services. Since the expected value of the wife's income is less when living overseas, Army families incur this larger decrease in wife's income more frequently than the other services.

The expected number of wife moves in the 20 year career was calculated for officer and enlisted families for each of the services. Then, a family income annuity was determined for each group based on the expected number of moves. Table 20 shows the resulting annuities when the number of PCS moves was set equal to the expected number of moves in a 20 year career. Among officer families, the income annuity is the largest for the Navy, followed by the Air Force, the Marines, and finally the Army. For enlisted families, the order of income annuities is the Navy, the Air Force, the Army, and finally the Marines.

Table 20
Annuities Based on the Expected Number of Wife Moves

| | Average Number of PCS moves by Wife in 20 Years | Present Value of Future Family Income in Terms of Annuity |
|-----------|---|---|
| Air Force | | |
| Officer | 6.4 | 40,037 |
| Enlisted | 5.4 | 25,436 |
| Army | | |
| Officer | 7.9 | 38,537 |
| Enlisted | 6.8 | 25,018 |
| Navy | | |
| Officer | 6.8 | 40,764 |
| Enlisted | 6.5 | 26,251 |
| Marines | | |
| Officer | 8.7 | 38,582 |
| Enlisted | 8.4 | 24,953 |

Sensitivity Analysis

Sensitivity analyses were performed using two different conditions -- all wives working full time and all wives working part-time. The next two sections present the family income annuities for these two scenarios.

All Wives Working Full Time. The probability of the wife working (CONUS and overseas) and the probability of working full time were set to one. The wife's income was decreased by 25 percent in the years that the family made a PCS move. This accounts for the period of time (approximately 3 months) the wife is unemployed due to the move. Table 21 shows the resulting family income annuities under these conditions. The intent is to analyze the effect of PCS moves on family income for families when the wife chooses to work full time.

Table 21
Sensitivity Analysis - Wife Working Full Time
Expected Family Income Annuity

| | Number of Moves | | | | |
|-----------|-----------------|--------|--------|--------|--------|
| | 5 | 6 | 7 | 8 | 9 |
| Enlisted | | | | | |
| Air Force | 31,903 | 31,549 | 31,231 | 30,909 | 30,585 |
| Army | 32,147 | 31,800 | 31,470 | 31,178 | 30,857 |
| Navy | 33,198 | 32,822 | 32,460 | 32,142 | 31,806 |
| Marines | 31,562 | 31,197 | 30,859 | 30,558 | 30,240 |
| Officer | | | | | |
| Air Force | 48,640 | 48,175 | 47,720 | 47,326 | 46,899 |
| Army | 47,385 | 46,923 | 46,502 | 46,109 | 45,693 |
| Navy | 49,110 | 48,650 | 48,223 | 47,836 | 47,424 |
| Marines | 47,225 | 46,770 | 46,330 | 45,939 | 45,528 |

The expected annual family income increases by approximately \$7,000 for enlisted families and by nearly \$9,000 for officer families when all wives work full time. Officer wives working full time earn about \$2,000 more per year than enlisted wives working full time. On average, officer family income decreases by about \$275 per year for each increase in the number of moves made in the 20 year career. The average decrease in annual income for enlisted families is about \$210 when the number of PCS moves in 20 years is incremented by one when the wife works full time.

All Wives Working Part-time. The probability of working and the probability of working part-time were set to one. Once again, the wife's income was decreased by 25 percent during the years of a move. The resulting impact on family income annuities is presented in Table 22. The increase in the family income annuity over the base expected income ranges from \$1,300 to \$2,300. Officer family income

decreases by about \$100 per year with each increase in the number of moves. For enlisted families, annual income decreases by approximately \$80 with each additional move in the 20 year period.

Table 22
Sensitivity Analysis - Wife Working Part-time
Expected Family Income Annuity

| | Number of Moves | | | | |
|-----------|-----------------|--------|--------|--------|--------|
| | 5 | 6 | 7 | 8 | 9 |
| Enlisted | | | | | |
| Air Force | 27,017 | 26,868 | 26,727 | 26,590 | 26,444 |
| Army | 27,005 | 26,847 | 26,693 | 26,552 | 26,397 |
| Navy | 27,969 | 27,827 | 27,687 | 27,560 | 27,421 |
| Marines | 27,107 | 26,969 | 26,834 | 26,711 | 26,575 |
| Officer | | | | | |
| Air Force | 41,433 | 41,254 | 41,079 | 40,919 | 40,743 |
| Army | 40,334 | 40,150 | 39,971 | 39,807 | 39,626 |
| Navy | 42,386 | 42,210 | 42,038 | 41,879 | 41,706 |
| Marines | 40,522 | 40,349 | 40,180 | 40,024 | 39,853 |

VI. Conclusions and Recommendations

Conclusion

Summary. The purpose of this study was to determine the effect that varying the number of PCS moves from 5 to 9 over a 20 year career has on total family income for officer and enlisted families of the four services. The population studied was limited to male military members married to civilian wives. Also, only PCS moves where the wife accompanies the member were considered.

This study identified 4 items that can affect family income as a result of a PCS move. First, the family may have moving expenses that are not reimbursed by the government. Second, if the wife works, she must quit her job and suffer a period of unemployment. Third, the wife must seek employment at the new location. Usually, the new job will pay less than the old job due to foregone tenure. Finally, the military member may have a change in part-time income if he works during his off-duty time.

Unreimbursed moving expenses were calculated from data obtained by the Air Force Manpower and Personnel Center in the 1987 PCS Cost Survey. The other components of family income were calculated using data from the 1985 DOD Survey of Officer and Enlisted Personnel and the 1985 DOD Survey of Military Spouses. When possible, equations were derived to predict the probability of working and the income earned from a job. Using these figures, expected family income was

calculated for each of the 20 years in the career. Then, a yearly income annuity was calculated for the sum of the present value of the yearly incomes.

Answers to the Research Questions. Specifically, this study attempted to answer six research questions. The first research question asked what impact does moving have on the probability of the wife working. The probability of the wife working increases as the amount of time living in a particular area increases. At the time a PCS move occurs, the probability of the wife working decreases between 20 and 30 percent. Also, the probability of the wife working when living overseas is approximately 3 percentage points lower than the probability of working when living stateside. The drop in the probability of the wife working during the year when a move occurs also accounts for the period of unemployment that the wife suffers due to the move.

The second research question asked what impact does moving have on the wife's earnings. For wives working full time in the CONUS, the annual wage drops between 3 and 4 percent in the year immediately following a move. The annual annuity for officer wives decreases by slightly over \$200 per year for each additional move made in the 20 year career. For enlisted wives, the decrease in the full time income annuity is about \$175 per year for each additional move. Once again, these loss of income figures are cumulative. The

effect of moving on the wife's part-time wages or her wages when living overseas could not be determined.

The third research question asked what impact does moving have on the probability of the member working a part-time job and the amount of income derived from that part-time job. The probability of the member working a second job decreases slightly (approximately 1 percentage point) after a PCS move. But, the overall proportion of members working a second job (about 4 percent for officers and 9 percent for enlisted) is so small that the impact on expected family income is negligible. The necessary information was not available to draw any conclusions on how PCS moves affect the members's second job earnings. The average off-duty income for part-time employed officers is \$5,100 and \$3,400 for enlisted personnel.

The fourth research question asked how important is the effect of PCS moves on total family income. The expected value of officer family income drops by nearly \$250 per year for each additional PCS move made in the 20 year career. This loss of income is cumulative. For instance, the difference in expected officer family income is \$1,000 less for every year in the 20 year career if 9 PCS moves are made in that career rather than 5 PCS moves. For enlisted families, the drop in expected income was slightly greater than \$200 per year for each additional move within the 20 year career.

The fifth research question asked how does the impact of PCS moves differentially affect the officer and enlisted families of the different services. Army families (officer and enlisted) incur a larger loss of income than the other services with each increment in the number of PCS moves. A greater percentage of Army wives live overseas than the other services. Since the expected value of the wife's income is less when living overseas, Army families incur this larger decrease in wife's income more frequently than the other services. Marine families (officer and enlisted) incur the smallest decrease in the income annuity. The marines have the smallest percentage of families living overseas. The decreases in income annuities are approximately equal for Navy and Air Force families.

The last research question asked what is the amount of unreimbursed expenses incurred by the family during a PCS move. Analysis from the Air Force PCS Survey revealed that out-of-pocket moving expenses incurred by officer families total \$1,841 for CONUS to CONUS moves, \$2,743 for CONUS to overseas moves, and \$2,811 for overseas to CONUS moves. The respective unreimbursed moving expenses for enlisted families are \$1,163, \$1,946, and \$2,415.

Areas For Further Research

The Defense Manpower Data Center is planning to administer the Member Survey and the Spouse Survey again in the early 1990's. After the collection is completed, this

study should be performed with the new data from the surveys. Comparison of the results of these two studies would be interesting.

The surveys used in this study did not contain information necessary to estimate part-time wage equations. The additional information needed to estimate part-time wage equations includes the number of hours worked per week and the hourly wage. Also, a history of the wife's labor force participation was not available. If this type of information was available, the amount of time the wife is out of the labor force due to PCS moves could be determined. This would give a better indication of how mobility affects spouse income.

PCS cost surveys similar to the Air Force's could be performed for the other services. It would be interesting to compare unreimbursed PCS costs between the services.

Research could be done to determine the impact of mobility on retention. Research on family income after retirement from the military would be needed to determine lifetime income for military families. Also, the impact of mobility during the military career on the second career income of the spouse and the member could be researched.

Appendix A: Probability of the Working - CONUS:
Results and Input Values

A: Probability of Wife Working - CONUS
 Enlisted Wives

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.343 | 0.343 | 0.343 | 0.343 | 0.343 |
| 2 | 0.429 | 0.429 | 0.429 | 0.429 | 0.429 |
| 3 | 0.487 | 0.487 | 0.468 | 0.429 | 0.410 |
| 4 | 0.521 | 0.419 | 0.392 | 0.407 | 0.418 |
| 5 | 0.387 | 0.416 | 0.439 | 0.454 | 0.408 |
| 6 | 0.428 | 0.459 | 0.376 | 0.384 | 0.410 |
| 7 | 0.463 | 0.443 | 0.384 | 0.418 | 0.410 |
| 8 | 0.515 | 0.393 | 0.434 | 0.412 | 0.393 |
| 9 | 0.369 | 0.428 | 0.416 | 0.391 | 0.419 |
| 10 | 0.410 | 0.471 | 0.384 | 0.433 | 0.370 |
| 11 | 0.483 | 0.392 | 0.456 | 0.392 | 0.441 |
| 12 | 0.515 | 0.423 | 0.414 | 0.423 | 0.383 |
| 13 | 0.379 | 0.469 | 0.405 | 0.413 | 0.420 |
| 14 | 0.434 | 0.424 | 0.460 | 0.411 | 0.407 |
| 15 | 0.487 | 0.426 | 0.424 | 0.464 | 0.426 |
| 16 | 0.536 | 0.475 | 0.429 | 0.399 | 0.432 |
| 17 | 0.414 | 0.485 | 0.490 | 0.460 | 0.433 |
| 18 | 0.485 | 0.455 | 0.454 | 0.474 | 0.480 |
| 19 | 0.543 | 0.513 | 0.490 | 0.474 | 0.463 |
| 20 | 0.598 | 0.568 | 0.546 | 0.530 | 0.519 |
| Average | 0.461 | 0.446 | 0.432 | 0.427 | 0.421 |

B: Values for "SMONTHS" for the Different PCS Rates

| Year | Number of Moves | | | | |
|------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| 2 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 |
| 3 | 30.00 | 30.00 | 25.17 | 15.00 | 9.75 |
| 4 | 42.00 | 15.33 | 8.00 | 12.00 | 15.00 |
| 5 | 6.00 | 14.00 | 20.00 | 24.00 | 11.83 |
| 6 | 18.00 | 26.00 | 3.75 | 6.00 | 13.00 |
| 7 | 30.00 | 24.67 | 9.00 | 18.00 | 16.00 |
| 8 | 42.00 | 10.00 | 21.00 | 15.00 | 10.00 |
| 9 | 6.00 | 22.00 | 18.83 | 12.00 | 19.75 |
| 10 | 18.00 | 34.00 | 11.00 | 24.00 | 7.00 |
| 11 | 30.00 | 6.00 | 23.00 | 6.00 | 19.00 |
| 12 | 42.00 | 18.00 | 15.58 | 18.00 | 7.17 |
| 13 | 6.00 | 30.00 | 13.00 | 15.00 | 17.00 |
| 14 | 18.00 | 15.33 | 25.00 | 12.00 | 11.00 |
| 15 | 30.00 | 14.00 | 13.67 | 24.00 | 14.00 |
| 16 | 42.00 | 26.00 | 14.00 | 6.00 | 14.75 |
| 17 | 6.00 | 24.67 | 26.00 | 18.00 | 11.00 |
| 18 | 18.00 | 10.00 | 9.83 | 15.00 | 16.50 |
| 19 | 30.00 | 22.00 | 16.00 | 12.00 | 9.00 |
| 20 | 42.00 | 34.00 | 28.00 | 24.00 | 21.00 |

C: Input Values for Probability Equations
Officer Wives

| Year | MNONWAGE | MTOTDEBT | MILINC | SAGE | KIDS | LESS15 | MCIVERNS | SBOONIES | OVERSEAS |
|------|----------|----------|----------|------|------|--------|----------|----------|----------|
| 1 | 1317.90 | 4.74 | 20068.08 | 23 | 1.20 | 0.94 | 64.29 | 0.10 | 0.44 |
| 2 | 734.29 | 4.75 | 16448.78 | 24 | 0.41 | 0.32 | 13.13 | 0.11 | 0.17 |
| 3 | 666.85 | 4.89 | 19184.84 | 25 | 0.58 | 0.45 | 91.07 | 0.11 | 0.29 |
| 4 | 869.89 | 4.55 | 22392.04 | 26 | 0.82 | 0.66 | 210.29 | 0.11 | 0.28 |
| 5 | 783.14 | 4.51 | 23601.29 | 27 | 0.96 | 0.79 | 30.50 | 0.15 | 0.41 |
| 6 | 1002.24 | 4.21 | 25746.55 | 28 | 1.16 | 0.92 | 448.33 | 0.09 | 0.53 |
| 7 | 1078.28 | 4.43 | 26288.20 | 29 | 1.28 | 1.11 | 197.65 | 0.12 | 0.74 |
| 8 | 2653.62 | 4.10 | 27903.43 | 30 | 1.30 | 1.13 | 295.29 | 0.08 | 0.73 |
| 9 | 1531.22 | 4.11 | 28505.43 | 31 | 1.49 | 1.32 | 205.73 | 0.10 | 0.97 |
| 10 | 1661.28 | 4.17 | 29569.98 | 32 | 1.64 | 1.47 | 254.95 | 0.11 | 0.91 |
| 11 | 1560.41 | 4.30 | 30900.68 | 33 | 1.86 | 1.68 | 63.41 | 0.15 | 1.31 |
| 12 | 1589.89 | 4.21 | 31735.21 | 34 | 1.76 | 1.59 | 19.33 | 0.07 | 1.36 |
| 13 | 2053.26 | 4.13 | 32653.64 | 35 | 1.94 | 1.78 | 122.03 | 0.11 | 1.59 |
| 14 | 1955.17 | 4.03 | 33188.38 | 36 | 2.10 | 1.96 | 345.96 | 0.10 | 1.59 |
| 15 | 2725.75 | 3.98 | 34347.89 | 37 | 1.84 | 1.72 | 296.90 | 0.08 | 1.85 |
| 16 | 2664.67 | 4.23 | 35434.61 | 38 | 2.09 | 1.90 | 372.55 | 0.09 | 1.88 |
| 17 | 3644.69 | 4.13 | 35513.73 | 39 | 2.07 | 1.77 | 279.50 | 0.08 | 2.11 |
| 18 | 2909.20 | 4.46 | 37384.12 | 40 | 2.16 | 1.62 | 97.88 | 0.09 | 2.16 |
| 19 | 2922.48 | 4.19 | 37923.50 | 41 | 2.06 | 1.50 | 456.22 | 0.05 | 2.53 |
| 20 | 4678.05 | 4.47 | 38194.71 | 42 | 2.04 | 1.28 | 223.85 | 0.06 | 3.03 |

| Constant Values | |
|-----------------|--------|
| SSCHOOL | 14.988 |
| HUSBAND | 0.948 |
| BLACK | 0.025 |

D: Input Values for Probability Equations
Enlisted Wives

| Year | MNONWAGE | MTOTDEBT | MILINC | SAGE | KIDS | LESS15 | MCIVERNS | SBOONIES | OVERSEAS |
|------|----------|----------|----------|------|------|--------|----------|----------|----------|
| 1 | 1139.61 | 4.16 | 11414.55 | 21 | 1.08 | 0.98 | 426.82 | 0.11 | 0.72 |
| 2 | 832.54 | 3.61 | 8633.42 | 22 | 0.67 | 0.62 | 107.25 | 0.09 | 0.10 |
| 3 | 414.22 | 3.77 | 9344.74 | 23 | 0.69 | 0.62 | 98.99 | 0.11 | 0.24 |
| 4 | 638.43 | 4.01 | 10375.63 | 24 | 0.92 | 0.87 | 163.02 | 0.14 | 0.35 |
| 5 | 524.48 | 4.28 | 12313.20 | 25 | 1.01 | 0.96 | 143.38 | 0.13 | 0.74 |
| 6 | 787.12 | 4.24 | 12746.65 | 26 | 1.14 | 1.08 | 337.79 | 0.10 | 0.77 |
| 7 | 895.61 | 4.28 | 13094.89 | 27 | 1.32 | 1.25 | 163.19 | 0.15 | 0.76 |
| 8 | 591.05 | 4.39 | 13878.64 | 28 | 1.41 | 1.35 | 212.79 | 0.11 | 1.06 |
| 9 | 904.97 | 4.34 | 14269.35 | 29 | 1.61 | 1.53 | 316.14 | 0.08 | 1.02 |
| 10 | 918.44 | 4.56 | 15213.61 | 30 | 1.73 | 1.69 | 176.87 | 0.11 | 1.14 |
| 11 | 935.49 | 4.52 | 15441.04 | 31 | 1.68 | 1.55 | 441.05 | 0.08 | 1.70 |
| 12 | 816.93 | 4.66 | 15668.80 | 32 | 1.93 | 1.84 | 285.97 | 0.12 | 1.88 |
| 13 | 504.35 | 4.54 | 16357.50 | 33 | 1.96 | 1.82 | 223.02 | 0.12 | 1.86 |
| 14 | 1251.38 | 4.63 | 16796.08 | 34 | 2.00 | 1.94 | 693.29 | 0.11 | 2.31 |
| 15 | 990.73 | 4.51 | 17281.26 | 35 | 1.99 | 1.91 | 314.33 | 0.09 | 2.69 |
| 16 | 1251.95 | 4.80 | 17546.41 | 36 | 2.16 | 2.04 | 485.72 | 0.14 | 2.45 |
| 17 | 1040.83 | 4.54 | 18006.50 | 37 | 2.11 | 1.90 | 505.08 | 0.09 | 3.01 |
| 18 | 997.74 | 4.61 | 18622.51 | 38 | 2.06 | 1.72 | 765.75 | 0.11 | 3.25 |
| 19 | 947.58 | 4.47 | 18927.18 | 39 | 1.96 | 1.53 | 641.77 | 0.20 | 3.08 |
| 20 | 986.18 | 4.64 | 19986.35 | 40 | 2.10 | 1.49 | 809.76 | 0.11 | 2.49 |

| Constant Values | |
|-----------------|--------|
| SSCHOOL | 12.531 |
| HUSBAND | 0.934 |
| BLACK | 0.063 |

Appendix B. Probability of Working Wives Working
Full Time - CONUS: Results and Input Values

A: Probability of Working Full Time
Officer Wives - CONUS

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.470 | 0.470 | 0.470 | 0.470 | 0.470 |
| 2 | 0.610 | 0.610 | 0.610 | 0.610 | 0.610 |
| 3 | 0.607 | 0.607 | 0.598 | 0.580 | 0.570 |
| 4 | 0.574 | 0.525 | 0.511 | 0.519 | 0.524 |
| 5 | 0.491 | 0.506 | 0.517 | 0.524 | 0.502 |
| 6 | 0.475 | 0.490 | 0.448 | 0.453 | 0.465 |
| 7 | 0.492 | 0.482 | 0.453 | 0.469 | 0.466 |
| 8 | 0.496 | 0.437 | 0.457 | 0.446 | 0.437 |
| 9 | 0.413 | 0.442 | 0.436 | 0.424 | 0.438 |
| 10 | 0.420 | 0.449 | 0.408 | 0.431 | 0.400 |
| 11 | 0.422 | 0.379 | 0.410 | 0.379 | 0.402 |
| 12 | 0.455 | 0.411 | 0.407 | 0.411 | 0.392 |
| 13 | 0.368 | 0.411 | 0.380 | 0.384 | 0.387 |
| 14 | 0.371 | 0.366 | 0.383 | 0.360 | 0.359 |
| 15 | 0.418 | 0.390 | 0.389 | 0.408 | 0.390 |
| 16 | 0.426 | 0.398 | 0.376 | 0.363 | 0.378 |
| 17 | 0.380 | 0.413 | 0.416 | 0.401 | 0.389 |
| 18 | 0.417 | 0.402 | 0.402 | 0.411 | 0.414 |
| 19 | 0.446 | 0.432 | 0.421 | 0.414 | 0.408 |
| 20 | 0.508 | 0.494 | 0.482 | 0.475 | 0.469 |
| Average | 0.463 | 0.456 | 0.449 | 0.447 | 0.444 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

B: Probability of Working Wives Working Full Time
Enlisted Wives - CONUS

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.478 | 0.478 | 0.478 | 0.478 | 0.478 |
| 2 | 0.558 | 0.558 | 0.558 | 0.558 | 0.558 |
| 3 | 0.588 | 0.588 | 0.580 | 0.561 | 0.552 |
| 4 | 0.592 | 0.543 | 0.530 | 0.537 | 0.542 |
| 5 | 0.519 | 0.534 | 0.545 | 0.552 | 0.530 |
| 6 | 0.531 | 0.546 | 0.504 | 0.509 | 0.522 |
| 7 | 0.542 | 0.532 | 0.503 | 0.520 | 0.516 |
| 8 | 0.560 | 0.501 | 0.521 | 0.510 | 0.501 |
| 9 | 0.476 | 0.506 | 0.500 | 0.487 | 0.502 |
| 10 | 0.492 | 0.521 | 0.479 | 0.503 | 0.471 |
| 11 | 0.534 | 0.489 | 0.521 | 0.489 | 0.513 |
| 12 | 0.537 | 0.493 | 0.489 | 0.493 | 0.473 |
| 13 | 0.471 | 0.516 | 0.484 | 0.488 | 0.492 |
| 14 | 0.491 | 0.486 | 0.504 | 0.479 | 0.478 |
| 15 | 0.519 | 0.490 | 0.489 | 0.508 | 0.490 |
| 16 | 0.542 | 0.512 | 0.490 | 0.475 | 0.492 |
| 17 | 0.486 | 0.521 | 0.523 | 0.509 | 0.496 |
| 18 | 0.532 | 0.517 | 0.517 | 0.526 | 0.529 |
| 19 | 0.575 | 0.560 | 0.549 | 0.542 | 0.537 |
| 20 | 0.600 | 0.586 | 0.575 | 0.568 | 0.562 |
| Average | 0.531 | 0.524 | 0.517 | 0.515 | 0.512 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

Appendix C: Wife's Full Time Income - US:
Results and Input Values

A: Predicted Wife's Full Time Income - US
Air Force Officer Wives (\$)

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|---------------|------------------------|----------|----------|----------|----------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 11,126 | 11,126 | 11,126 | 11,126 | 11,126 |
| 2 | 11,688 | 11,688 | 11,688 | 11,688 | 11,688 |
| 3 | 12,265 | 12,265 | 12,167 | 11,972 | 11,844 |
| 4 | 12,402 | 11,959 | 11,788 | 11,817 | 11,839 |
| 5 | 12,084 | 12,144 | 12,189 | 12,219 | 11,918 |
| 6 | 12,400 | 12,462 | 12,200 | 11,947 | 11,999 |
| 7 | 12,631 | 12,465 | 12,102 | 12,170 | 12,034 |
| 8 | 13,065 | 12,433 | 12,518 | 12,287 | 12,068 |
| 9 | 12,692 | 12,819 | 12,636 | 12,366 | 12,395 |
| 10 | 12,921 | 13,050 | 12,488 | 12,589 | 12,091 |
| 11 | 13,250 | 12,672 | 12,806 | 12,300 | 12,399 |
| 12 | 14,151 | 13,533 | 13,280 | 13,136 | 12,697 |
| 13 | 13,436 | 13,638 | 13,099 | 12,921 | 12,746 |
| 14 | 14,006 | 13,708 | 13,654 | 13,147 | 12,881 |
| 15 | 14,639 | 14,069 | 13,790 | 13,741 | 13,256 |
| 16 | 15,431 | 14,830 | 14,289 | 13,801 | 13,705 |
| 17 | 14,828 | 14,853 | 14,573 | 14,075 | 13,603 |
| 18 | 15,397 | 14,871 | 14,505 | 14,266 | 13,964 |
| 19 | 15,694 | 15,158 | 14,659 | 14,193 | 13,751 |
| 20 | 16,104 | 15,555 | 15,042 | 14,565 | 14,111 |
| PV Inc Stream | 197,597 | 194,311 | 191,150 | 188,323 | 185,510 |
| PV Annuity | 13,282 | 13,061 | 12,848 | 12,658 | 12,469 |

Note: 3 Percent Discount Rate

B: Predicted Wife's Full Time Income - US
Air Force Enlisted Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 8,801 | 8,801 | 8,801 | 8,801 | 8,801 |
| 2 | 9,112 | 9,112 | 9,112 | 9,112 | 9,112 |
| 3 | 9,271 | 9,271 | 9,195 | 9,042 | 8,944 |
| 4 | 9,507 | 9,155 | 9,020 | 9,044 | 9,062 |
| 5 | 9,400 | 9,451 | 9,489 | 9,514 | 9,274 |
| 6 | 9,535 | 9,586 | 9,374 | 9,181 | 9,224 |
| 7 | 9,967 | 9,833 | 9,539 | 9,597 | 9,489 |
| 8 | 10,268 | 9,755 | 9,827 | 9,643 | 9,468 |
| 9 | 10,011 | 10,119 | 9,973 | 9,757 | 9,783 |
| 10 | 10,227 | 10,337 | 9,880 | 9,967 | 9,565 |
| 11 | 10,588 | 10,113 | 10,229 | 9,816 | 9,902 |
| 12 | 10,985 | 10,493 | 10,295 | 10,185 | 9,839 |
| 13 | 10,780 | 10,955 | 10,513 | 10,372 | 10,232 |
| 14 | 11,059 | 10,822 | 10,785 | 10,378 | 10,167 |
| 15 | 11,494 | 11,038 | 10,819 | 10,786 | 10,400 |
| 16 | 11,594 | 11,134 | 10,720 | 10,350 | 10,283 |
| 17 | 11,366 | 11,395 | 11,181 | 10,795 | 10,429 |
| 18 | 11,967 | 11,553 | 11,269 | 11,086 | 10,852 |
| 19 | 12,104 | 11,686 | 11,297 | 10,936 | 10,594 |
| 20 | 12,715 | 12,275 | 11,867 | 11,488 | 11,129 |
| PV Inc Stream | 154,107 | 151,519 | 149,029 | 146,821 | 144,614 |
| PV Annuity | 10,358 | 10,184 | 10,017 | 9,869 | 9,720 |

Note: 3 Percent Discount Rate

C: Predicted Wife's Full Time Income - US
Army Officer Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 11,052 | 11,052 | 11,052 | 11,052 | 11,052 |
| 2 | 11,125 | 11,125 | 11,125 | 11,125 | 11,125 |
| 3 | 11,915 | 11,915 | 11,821 | 11,630 | 11,507 |
| 4 | 12,327 | 11,887 | 11,716 | 11,746 | 11,767 |
| 5 | 11,974 | 12,033 | 12,078 | 12,108 | 11,810 |
| 6 | 12,107 | 12,167 | 11,912 | 11,665 | 11,715 |
| 7 | 12,700 | 12,533 | 12,168 | 12,236 | 12,100 |
| 8 | 13,232 | 12,592 | 12,678 | 12,444 | 12,222 |
| 9 | 12,290 | 12,412 | 12,235 | 11,974 | 12,001 |
| 10 | 13,087 | 13,217 | 12,648 | 12,750 | 12,246 |
| 11 | 13,316 | 12,735 | 12,870 | 12,361 | 12,461 |
| 12 | 13,865 | 13,260 | 13,012 | 12,871 | 12,441 |
| 13 | 13,538 | 13,740 | 13,198 | 13,019 | 12,842 |
| 14 | 14,464 | 14,156 | 14,100 | 13,577 | 13,302 |
| 15 | 14,321 | 13,764 | 13,491 | 13,443 | 12,968 |
| 16 | 14,953 | 14,371 | 13,846 | 13,374 | 13,281 |
| 17 | 14,695 | 14,719 | 14,442 | 13,949 | 13,481 |
| 18 | 15,131 | 14,614 | 14,255 | 14,019 | 13,722 |
| 19 | 15,680 | 15,145 | 14,646 | 14,181 | 13,739 |
| 20 | 16,005 | 15,459 | 14,950 | 14,475 | 14,024 |
| PV Inc Stream | 195,687 | 192,421 | 189,288 | 186,482 | 183,681 |
| PV Annuity | 13,153 | 12,934 | 12,723 | 12,535 | 12,346 |

Note: 3 Percent Discount Rate

D: Predicted Wife's Full-Time Income - US
Army Enlisted Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 8,856 | 8,856 | 8,856 | 8,856 | 8,856 |
| 2 | 9,086 | 9,086 | 9,086 | 9,086 | 9,086 |
| 3 | 9,248 | 9,248 | 9,172 | 9,020 | 8,921 |
| 4 | 9,586 | 9,231 | 9,095 | 9,119 | 9,137 |
| 5 | 9,269 | 9,319 | 9,356 | 9,381 | 9,145 |
| 6 | 9,598 | 9,650 | 9,436 | 9,242 | 9,285 |
| 7 | 9,896 | 9,764 | 9,472 | 9,529 | 9,422 |
| 8 | 10,089 | 9,585 | 9,656 | 9,475 | 9,303 |
| 9 | 10,020 | 10,128 | 9,982 | 9,765 | 9,792 |
| 10 | 10,336 | 10,448 | 9,986 | 10,073 | 9,667 |
| 11 | 10,619 | 10,143 | 10,259 | 9,845 | 9,931 |
| 12 | 11,184 | 10,683 | 10,482 | 10,369 | 10,017 |
| 13 | 10,808 | 10,983 | 10,540 | 10,398 | 10,258 |
| 14 | 11,302 | 11,060 | 11,022 | 10,606 | 10,390 |
| 15 | 11,413 | 10,960 | 10,742 | 10,710 | 10,326 |
| 16 | 11,568 | 11,109 | 10,696 | 10,327 | 10,260 |
| 17 | 11,721 | 11,752 | 11,531 | 11,133 | 10,755 |
| 18 | 11,838 | 11,429 | 11,148 | 10,967 | 10,735 |
| 19 | 12,208 | 11,787 | 11,395 | 11,031 | 10,686 |
| 20 | 12,439 | 12,010 | 11,610 | 11,239 | 10,888 |
| PV Inc Stream | 154,334 | 151,751 | 149,254 | 147,037 | 144,825 |
| PV Annuity | 10,374 | 10,200 | 10,032 | 9,883 | 9,734 |

Note: 3 Percent Discount Rate

E: Predicted Wife's Full Time Income - US
Navy Officer Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 10,926 | 10,926 | 10,926 | 10,926 | 10,926 |
| 2 | 10,911 | 10,911 | 10,911 | 10,911 | 10,911 |
| 3 | 11,632 | 11,632 | 11,540 | 11,354 | 11,233 |
| 4 | 11,842 | 11,419 | 11,255 | 11,283 | 11,304 |
| 5 | 11,399 | 11,455 | 11,498 | 11,526 | 11,243 |
| 6 | 11,724 | 11,782 | 11,534 | 11,295 | 11,345 |
| 7 | 12,411 | 12,247 | 11,891 | 11,957 | 11,824 |
| 8 | 12,657 | 12,044 | 12,127 | 11,903 | 11,691 |
| 9 | 11,995 | 12,114 | 11,942 | 11,686 | 11,714 |
| 10 | 12,466 | 12,590 | 12,048 | 12,145 | 11,665 |
| 11 | 12,787 | 12,229 | 12,358 | 11,870 | 11,966 |
| 12 | 13,168 | 12,593 | 12,358 | 12,224 | 11,815 |
| 13 | 12,902 | 13,095 | 12,578 | 12,408 | 12,239 |
| 14 | 13,334 | 13,050 | 12,999 | 12,516 | 12,263 |
| 15 | 14,102 | 13,554 | 13,285 | 13,238 | 12,770 |
| 16 | 14,301 | 13,745 | 13,243 | 12,791 | 12,701 |
| 17 | 14,416 | 14,440 | 14,168 | 13,684 | 13,225 |
| 18 | 14,344 | 13,854 | 13,513 | 13,290 | 13,009 |
| 19 | 15,152 | 14,635 | 14,153 | 13,703 | 13,277 |
| 20 | 15,827 | 15,287 | 14,784 | 14,314 | 13,869 |
| PV Inc Stream | 188,851 | 185,712 | 182,688 | 179,989 | 177,293 |
| PV Annuity | 12,694 | 12,483 | 12,280 | 12,098 | 11,917 |

Note: 3 Percent Discount Rate

F: Predicted Wife's Full Time Income - US
Navy Enlisted Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 9,024 | 9,024 | 9,024 | 9,024 | 9,024 |
| 2 | 9,518 | 9,518 | 9,518 | 9,518 | 9,518 |
| 3 | 9,844 | 9,844 | 9,764 | 9,601 | 9,497 |
| 4 | 10,062 | 9,690 | 9,547 | 9,572 | 9,592 |
| 5 | 9,806 | 9,858 | 9,898 | 9,925 | 9,675 |
| 6 | 10,220 | 10,275 | 10,048 | 9,841 | 9,887 |
| 7 | 10,408 | 10,268 | 9,961 | 10,021 | 9,909 |
| 8 | 10,937 | 10,391 | 10,468 | 10,272 | 10,086 |
| 9 | 10,569 | 10,683 | 10,529 | 10,300 | 10,328 |
| 10 | 10,922 | 11,040 | 10,551 | 10,644 | 10,214 |
| 11 | 11,132 | 10,633 | 10,755 | 10,321 | 10,411 |
| 12 | 11,541 | 11,024 | 10,816 | 10,700 | 10,337 |
| 13 | 11,254 | 11,437 | 10,976 | 10,828 | 10,682 |
| 14 | 11,661 | 11,411 | 11,372 | 10,942 | 10,720 |
| 15 | 12,119 | 11,638 | 11,406 | 11,372 | 10,965 |
| 16 | 12,466 | 11,971 | 11,526 | 11,128 | 11,056 |
| 17 | 12,253 | 12,285 | 12,054 | 11,638 | 11,244 |
| 18 | 12,517 | 12,085 | 11,787 | 11,596 | 11,351 |
| 19 | 13,053 | 12,602 | 12,183 | 11,794 | 11,425 |
| 20 | 13,583 | 13,114 | 12,678 | 12,273 | 11,889 |
| PV Inc Stream | 162,810 | 160,067 | 157,423 | 155,074 | 152,735 |
| PV Annuity | 10,943 | 10,759 | 10,581 | 10,423 | 10,266 |

Note: 3 Percent Discount Rate

G: Predicted Wife's Full Time Income - US
Marine Officer Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 10,536 | 10,536 | 10,536 | 10,536 | 10,536 |
| 2 | 11,445 | 11,445 | 11,445 | 11,445 | 11,445 |
| 3 | 11,516 | 11,516 | 11,425 | 11,241 | 11,122 |
| 4 | 11,556 | 11,143 | 10,983 | 11,011 | 11,031 |
| 5 | 11,360 | 11,416 | 11,459 | 11,487 | 11,205 |
| 6 | 11,632 | 11,690 | 11,444 | 11,207 | 11,256 |
| 7 | 11,783 | 11,628 | 11,289 | 11,352 | 11,226 |
| 8 | 12,491 | 11,886 | 11,968 | 11,747 | 11,538 |
| 9 | 11,780 | 11,898 | 11,728 | 11,477 | 11,504 |
| 10 | 12,756 | 12,883 | 12,328 | 12,428 | 11,937 |
| 11 | 12,603 | 12,052 | 12,180 | 11,699 | 11,793 |
| 12 | 13,210 | 12,633 | 12,397 | 12,262 | 11,853 |
| 13 | 12,917 | 13,111 | 12,593 | 12,422 | 12,254 |
| 14 | 13,515 | 13,227 | 13,175 | 12,686 | 12,429 |
| 15 | 13,959 | 13,416 | 13,149 | 13,103 | 12,640 |
| 16 | 14,480 | 13,917 | 13,408 | 12,951 | 12,860 |
| 17 | 14,325 | 14,348 | 14,078 | 13,597 | 13,141 |
| 18 | 14,715 | 14,213 | 13,863 | 13,634 | 13,345 |
| 19 | 15,478 | 14,950 | 14,457 | 13,998 | 13,562 |
| 20 | 15,644 | 15,110 | 14,613 | 14,149 | 13,708 |
| PV Inc Stream | 188,207 | 185,081 | 182,059 | 179,359 | 176,657 |
| PV Annuity | 12,650 | 12,440 | 12,237 | 12,056 | 11,874 |

Note: 3 Percent Discount Rate

H: Predicted Wife's Full Time Income - US
Marine Enlisted Wives (\$)

| Year | Number of Moves | | | | |
|---------------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 8,426 | 8,426 | 8,426 | 8,426 | 8,426 |
| 2 | 8,669 | 8,669 | 8,669 | 8,669 | 8,669 |
| 3 | 8,989 | 8,989 | 8,916 | 8,768 | 8,672 |
| 4 | 9,429 | 9,080 | 8,946 | 8,970 | 8,988 |
| 5 | 8,973 | 9,022 | 9,058 | 9,082 | 8,853 |
| 6 | 9,343 | 9,393 | 9,185 | 8,996 | 9,038 |
| 7 | 9,612 | 9,483 | 9,199 | 9,255 | 9,151 |
| 8 | 9,905 | 9,410 | 9,480 | 9,302 | 9,134 |
| 9 | 9,758 | 9,864 | 9,721 | 9,510 | 9,536 |
| 10 | 10,109 | 10,218 | 9,767 | 9,852 | 9,455 |
| 11 | 10,646 | 10,168 | 10,285 | 9,870 | 9,956 |
| 12 | 10,851 | 10,365 | 10,170 | 10,061 | 9,719 |
| 13 | 10,454 | 10,623 | 10,195 | 10,058 | 9,922 |
| 14 | 10,896 | 10,662 | 10,626 | 10,225 | 10,017 |
| 15 | 11,534 | 11,076 | 10,856 | 10,823 | 10,435 |
| 16 | 11,834 | 11,364 | 10,942 | 10,565 | 10,496 |
| 17 | 11,237 | 11,266 | 11,055 | 10,673 | 10,311 |
| 18 | 11,423 | 11,028 | 10,757 | 10,582 | 10,359 |
| 19 | 12,148 | 11,728 | 11,338 | 10,976 | 10,633 |
| 20 | 12,679 | 12,242 | 11,835 | 11,457 | 11,098 |
| PV Inc Stream | 151,015 | 148,447 | 145,990 | 143,804 | 141,634 |
| PV Annuity | 10,151 | 9,978 | 9,813 | 9,666 | 9,520 |

Note: 3 Percent Discount Rate

I: Values for "WMOVES"

| Year | Number of Moves | | | | |
|------|-----------------|------|------|------|------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 3 | 1.00 | 1.00 | 1.17 | 1.50 | 1.75 |
| 4 | 1.00 | 1.67 | 2.00 | 2.00 | 2.00 |
| 5 | 2.00 | 2.00 | 2.00 | 2.00 | 2.58 |
| 6 | 2.00 | 2.00 | 2.25 | 3.00 | 3.00 |
| 7 | 2.00 | 2.33 | 3.00 | 3.00 | 3.33 |
| 8 | 2.00 | 3.00 | 3.00 | 3.50 | 4.00 |
| 9 | 3.00 | 3.00 | 3.42 | 4.00 | 4.08 |
| 10 | 3.00 | 3.00 | 4.00 | 4.00 | 5.00 |
| 11 | 3.00 | 4.00 | 4.00 | 5.00 | 5.00 |
| 12 | 3.00 | 4.00 | 4.58 | 5.00 | 5.92 |
| 13 | 4.00 | 4.00 | 5.00 | 5.50 | 6.00 |
| 14 | 4.00 | 4.67 | 5.00 | 6.00 | 6.67 |
| 15 | 4.00 | 5.00 | 5.67 | 6.00 | 7.00 |
| 16 | 4.00 | 5.00 | 6.00 | 7.00 | 7.42 |
| 17 | 5.00 | 5.33 | 6.00 | 7.00 | 8.00 |
| 18 | 5.00 | 6.00 | 6.83 | 7.50 | 8.25 |
| 19 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 |
| 20 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 |

J: Variable Values for Wage Equation
Air Force Officer Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.32 | 0.24 | 0.16 | 0.08 | 23 |
| 2 | 0.35 | 0.31 | 0.00 | 0.10 | 24 |
| 3 | 0.23 | 0.40 | 0.14 | 0.14 | 25 |
| 4 | 0.11 | 0.32 | 0.32 | 0.18 | 26 |
| 5 | 0.07 | 0.30 | 0.28 | 0.09 | 27 |
| 6 | 0.05 | 0.27 | 0.45 | 0.07 | 28 |
| 7 | 0.04 | 0.25 | 1.13 | 0.14 | 29 |
| 8 | 0.04 | 0.21 | 0.57 | 0.07 | 30 |
| 9 | 0.00 | 0.22 | 1.06 | 0.06 | 31 |
| 10 | 0.02 | 0.14 | 0.75 | 0.09 | 32 |
| 11 | 0.00 | 0.13 | 1.12 | 0.13 | 33 |
| 12 | 0.00 | 0.27 | 1.23 | 0.06 | 34 |
| 13 | 0.00 | 0.16 | 1.41 | 0.06 | 35 |
| 14 | 0.00 | 0.21 | 1.46 | 0.10 | 36 |
| 15 | 0.00 | 0.27 | 1.70 | 0.09 | 37 |
| 16 | 0.01 | 0.35 | 1.59 | 0.07 | 38 |
| 17 | 0.00 | 0.32 | 2.18 | 0.09 | 39 |
| 18 | 0.00 | 0.34 | 2.27 | 0.07 | 40 |
| 19 | 0.00 | 0.27 | 2.47 | 0.01 | 41 |
| 20 | 0.00 | 0.28 | 3.26 | 0.04 | 42 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 15 |
| BLACK | 0.0223 |
| ASIAN | 0.0196 |

K: Variable Values for Wage Equation
Air Force Enlisted Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.25 | 0.30 | 0.41 | 0.16 | 20 |
| 2 | 0.43 | 0.25 | 0.10 | 0.05 | 21 |
| 3 | 0.33 | 0.20 | 0.39 | 0.13 | 22 |
| 4 | 0.20 | 0.17 | 0.34 | 0.19 | 23 |
| 5 | 0.15 | 0.27 | 0.76 | 0.12 | 24 |
| 6 | 0.08 | 0.18 | 1.10 | 0.11 | 25 |
| 7 | 0.05 | 0.25 | 0.90 | 0.19 | 26 |
| 8 | 0.05 | 0.21 | 1.09 | 0.09 | 27 |
| 9 | 0.03 | 0.22 | 1.17 | 0.05 | 28 |
| 10 | 0.00 | 0.19 | 1.56 | 0.11 | 29 |
| 11 | 0.02 | 0.20 | 1.86 | 0.07 | 30 |
| 12 | 0.04 | 0.21 | 1.66 | 0.09 | 31 |
| 13 | 0.02 | 0.30 | 2.03 | 0.15 | 32 |
| 14 | 0.01 | 0.32 | 3.19 | 0.15 | 33 |
| 15 | 0.00 | 0.32 | 2.67 | 0.16 | 34 |
| 16 | 0.00 | 0.21 | 3.45 | 0.11 | 35 |
| 17 | 0.00 | 0.26 | 3.62 | 0.09 | 36 |
| 18 | 0.00 | 0.37 | 3.63 | 0.13 | 37 |
| 19 | 0.00 | 0.24 | 3.35 | 0.17 | 38 |
| 20 | 0.00 | 0.30 | 3.24 | 0.10 | 39 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 12.5 |
| BLACK | 0.0580 |
| ASIAN | 0.0592 |

L: Variable Values for Wage Equation
Army Officer Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.11 | 0.26 | 0.79 | 0.11 | 23 |
| 2 | 0.52 | 0.10 | 0.61 | 0.06 | 24 |
| 3 | 0.18 | 0.31 | 0.95 | 0.13 | 25 |
| 4 | 0.05 | 0.30 | 0.65 | 0.11 | 26 |
| 5 | 0.06 | 0.31 | 0.71 | 0.20 | 27 |
| 6 | 0.08 | 0.21 | 1.13 | 0.13 | 28 |
| 7 | 0.05 | 0.27 | 1.14 | 0.09 | 29 |
| 8 | 0.00 | 0.33 | 1.60 | 0.09 | 30 |
| 9 | 0.04 | 0.13 | 1.88 | 0.13 | 31 |
| 10 | 0.02 | 0.25 | 1.79 | 0.07 | 32 |
| 11 | 0.02 | 0.21 | 2.45 | 0.08 | 33 |
| 12 | 0.02 | 0.23 | 2.17 | 0.08 | 34 |
| 13 | 0.02 | 0.26 | 2.28 | 0.14 | 35 |
| 14 | 0.00 | 0.44 | 3.03 | 0.10 | 36 |
| 15 | 0.00 | 0.24 | 3.23 | 0.06 | 37 |
| 16 | 0.00 | 0.29 | 3.41 | 0.04 | 38 |
| 17 | 0.00 | 0.35 | 3.71 | 0.06 | 39 |
| 18 | 0.00 | 0.31 | 3.31 | 0.05 | 40 |
| 19 | 0.00 | 0.34 | 3.61 | 0.07 | 41 |
| 20 | 0.00 | 0.35 | 4.87 | 0.11 | 42 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 15 |
| BLACK | 0.0433 |
| ASIAN | 0.0147 |

M: Variable Values for Wage Equation
Army Enlisted Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.28 | 0.22 | 0.28 | 0.06 | 21 |
| 2 | 0.48 | 0.18 | 0.18 | 0.13 | 22 |
| 3 | 0.41 | 0.10 | 0.33 | 0.13 | 23 |
| 4 | 0.09 | 0.12 | 0.76 | 0.03 | 24 |
| 5 | 0.12 | 0.19 | 1.76 | 0.19 | 25 |
| 6 | 0.10 | 0.14 | 1.26 | 0.09 | 26 |
| 7 | 0.07 | 0.15 | 1.49 | 0.14 | 27 |
| 8 | 0.04 | 0.12 | 2.38 | 0.14 | 28 |
| 9 | 0.03 | 0.21 | 2.05 | 0.10 | 29 |
| 10 | 0.00 | 0.23 | 2.46 | 0.14 | 30 |
| 11 | 0.00 | 0.25 | 3.63 | 0.11 | 31 |
| 12 | 0.00 | 0.39 | 4.16 | 0.14 | 32 |
| 13 | 0.02 | 0.27 | 2.97 | 0.08 | 33 |
| 14 | 0.02 | 0.38 | 3.68 | 0.11 | 34 |
| 15 | 0.00 | 0.32 | 5.32 | 0.04 | 35 |
| 16 | 0.00 | 0.13 | 3.71 | 0.10 | 36 |
| 17 | 0.00 | 0.42 | 4.58 | 0.13 | 37 |
| 18 | 0.00 | 0.28 | 4.97 | 0.03 | 38 |
| 19 | 0.00 | 0.28 | 4.59 | 0.17 | 39 |
| 20 | 0.00 | 0.20 | 4.53 | 0.20 | 40 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 12.4 |
| BLACK | 0.1094 |
| ASIAN | 0.0704 |

N: Variable Values for Wage Equation
Navy Officer Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.25 | 0.44 | 0.10 | 0.06 | 23 |
| 2 | 0.24 | 0.29 | 0.14 | 0.14 | 24 |
| 3 | 0.18 | 0.42 | 0.03 | 0.06 | 25 |
| 4 | 0.14 | 0.35 | 0.07 | 0.07 | 26 |
| 5 | 0.11 | 0.33 | 0.38 | 0.16 | 27 |
| 6 | 0.13 | 0.28 | 0.40 | 0.06 | 28 |
| 7 | 0.07 | 0.41 | 0.54 | 0.07 | 29 |
| 8 | 0.08 | 0.35 | 0.65 | 0.08 | 30 |
| 9 | 0.00 | 0.21 | 0.66 | 0.05 | 31 |
| 10 | 0.03 | 0.26 | 0.57 | 0.17 | 32 |
| 11 | 0.08 | 0.23 | 0.98 | 0.13 | 33 |
| 12 | 0.06 | 0.21 | 1.29 | 0.06 | 34 |
| 13 | 0.00 | 0.26 | 1.65 | 0.06 | 35 |
| 14 | 0.00 | 0.24 | 1.29 | 0.06 | 36 |
| 15 | 0.00 | 0.34 | 1.17 | 0.03 | 37 |
| 16 | 0.02 | 0.28 | 1.60 | 0.09 | 38 |
| 17 | 0.00 | 0.45 | 1.33 | 0.14 | 39 |
| 18 | 0.03 | 0.28 | 1.95 | 0.10 | 40 |
| 19 | 0.00 | 0.38 | 1.88 | 0.08 | 41 |
| 20 | 0.00 | 0.40 | 1.50 | 0.03 | 42 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 14 |
| BLACK | 0.0144 |
| ASIAN | 0.0144 |

O: Variable Values for Wage Equation
Navy Enlisted Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.17 | 0.21 | 0.83 | 0.08 | 21 |
| 2 | 0.71 | 0.25 | 0.04 | 0.07 | 22 |
| 3 | 0.37 | 0.26 | 0.12 | 0.05 | 23 |
| 4 | 0.29 | 0.22 | 0.08 | 0.14 | 24 |
| 5 | 0.19 | 0.23 | 0.41 | 0.05 | 25 |
| 6 | 0.16 | 0.29 | 0.39 | 0.12 | 26 |
| 7 | 0.10 | 0.22 | 0.68 | 0.11 | 27 |
| 8 | 0.05 | 0.30 | 0.59 | 0.10 | 28 |
| 9 | 0.01 | 0.27 | 0.77 | 0.07 | 29 |
| 10 | 0.03 | 0.27 | 0.74 | 0.10 | 30 |
| 11 | 0.04 | 0.22 | 1.39 | 0.08 | 31 |
| 12 | 0.04 | 0.25 | 1.47 | 0.13 | 32 |
| 13 | 0.00 | 0.25 | 1.30 | 0.10 | 33 |
| 14 | 0.00 | 0.26 | 1.42 | 0.08 | 34 |
| 15 | 0.00 | 0.31 | 1.96 | 0.06 | 35 |
| 16 | 0.00 | 0.3 | 1.75 | 0.18 | 36 |
| 17 | 0.00 | 0.34 | 2.03 | 0.05 | 37 |
| 18 | 0.00 | 0.26 | 1.77 | 0.06 | 38 |
| 19 | 0.00 | 0.38 | 2.56 | 0.18 | 39 |
| 20 | 0.00 | 0.35 | 1.73 | 0.12 | 40 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 12.8 |
| BLACK | 0.0347 |
| ASIAN | 0.0970 |

P: Variable Values for Wage Equation
Marine Officer Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.27 | 0.27 | 0.00 | 0.18 | 21 |
| 2 | 0.77 | 0.47 | 0.00 | 0.13 | 22 |
| 3 | 0.28 | 0.36 | 0.08 | 0.10 | 23 |
| 4 | 0.12 | 0.21 | 0.06 | 0.03 | 24 |
| 5 | 0.14 | 0.30 | 0.34 | 0.18 | 25 |
| 6 | 0.12 | 0.24 | 0.15 | 0.15 | 26 |
| 7 | 0.10 | 0.14 | 0.08 | 0.14 | 27 |
| 8 | 0.04 | 0.26 | 0.23 | 0.11 | 28 |
| 9 | 0.02 | 0.12 | 0.20 | 0.16 | 29 |
| 10 | 0.02 | 0.34 | 0.32 | 0.15 | 30 |
| 11 | 0.03 | 0.16 | 0.22 | 0.31 | 31 |
| 12 | 0.04 | 0.18 | 0.46 | 0.07 | 32 |
| 13 | 0.00 | 0.24 | 0.48 | 0.24 | 33 |
| 14 | 0.00 | 0.27 | 0.52 | 0.12 | 34 |
| 15 | 0.00 | 0.27 | 0.51 | 0.14 | 35 |
| 16 | 0.00 | 0.31 | 0.82 | 0.18 | 36 |
| 17 | 0.00 | 0.34 | 0.66 | 0.03 | 37 |
| 18 | 0.00 | 0.35 | 0.86 | 0.16 | 38 |
| 19 | 0.00 | 0.41 | 0.91 | 0.06 | 39 |
| 20 | 0.00 | 0.31 | 1.12 | 0.04 | 40 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 14.9 |
| BLACK | 0.0115 |
| ASIAN | 0.0242 |

Q: Variable Values for Wage Equation
Marine Enlisted Wives

| <u>Year</u> | <u>LT12</u> | <u>SKILL</u> | <u>SOVERSEAS</u> | <u>BOONIES</u> | <u>AGE</u> |
|-------------|-------------|--------------|------------------|----------------|------------|
| 1 | 0.31 | 0.19 | 0.38 | 0.12 | 19 |
| 2 | 0.81 | 0.12 | 0.00 | 0.12 | 20 |
| 3 | 0.43 | 0.14 | 0.02 | 0.09 | 21 |
| 4 | 0.40 | 0.25 | 0.38 | 0.13 | 22 |
| 5 | 0.21 | 0.14 | 0.18 | 0.18 | 23 |
| 6 | 0.15 | 0.17 | 0.47 | 0.09 | 24 |
| 7 | 0.09 | 0.14 | 0.15 | 0.15 | 25 |
| 8 | 0.08 | 0.14 | 0.47 | 0.16 | 26 |
| 9 | 0.08 | 0.19 | 0.20 | 0.13 | 27 |
| 10 | 0.03 | 0.19 | 0.22 | 0.09 | 28 |
| 11 | 0.03 | 0.29 | 0.23 | 0.09 | 29 |
| 12 | 0.02 | 0.22 | 0.24 | 0.13 | 30 |
| 13 | 0.00 | 0.21 | 0.76 | 0.17 | 31 |
| 14 | 0.05 | 0.21 | 0.44 | 0.09 | 32 |
| 15 | 0.08 | 0.33 | 0.36 | 0.08 | 33 |
| 16 | 0.00 | 0.33 | 0.67 | 0.17 | 34 |
| 17 | 0.00 | 0.23 | 1.52 | 0.11 | 35 |
| 18 | 0.00 | 0.17 | 1.69 | 0.21 | 36 |
| 19 | 0.00 | 0.33 | 1.21 | 0.33 | 37 |
| 20 | 0.00 | 0.29 | 0.94 | 0.06 | 38 |

| <u>Constant Values</u> | |
|------------------------|--------|
| EDUCATION | 12.5 |
| BLACK | 0.0615 |
| ASIAN | 0.0624 |

Appendix D: Probability of the Wife Working - Overseas:
Results and Input Values

A: Probability of Working
Officer Wives - Overseas

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.385 | 0.385 | 0.385 | 0.385 | 0.385 |
| 2 | 0.544 | 0.544 | 0.544 | 0.544 | 0.544 |
| 3 | 0.575 | 0.575 | 0.553 | 0.504 | 0.479 |
| 4 | 0.581 | 0.454 | 0.420 | 0.438 | 0.452 |
| 5 | 0.395 | 0.432 | 0.460 | 0.479 | 0.422 |
| 6 | 0.420 | 0.458 | 0.355 | 0.365 | 0.397 |
| 7 | 0.474 | 0.449 | 0.376 | 0.418 | 0.408 |
| 8 | 0.520 | 0.370 | 0.421 | 0.393 | 0.370 |
| 9 | 0.337 | 0.409 | 0.394 | 0.363 | 0.398 |
| 10 | 0.380 | 0.454 | 0.349 | 0.407 | 0.331 |
| 11 | 0.418 | 0.312 | 0.386 | 0.312 | 0.368 |
| 12 | 0.481 | 0.369 | 0.358 | 0.369 | 0.322 |
| 13 | 0.306 | 0.411 | 0.335 | 0.344 | 0.352 |
| 14 | 0.345 | 0.334 | 0.376 | 0.320 | 0.316 |
| 15 | 0.421 | 0.349 | 0.347 | 0.394 | 0.349 |
| 16 | 0.467 | 0.393 | 0.339 | 0.306 | 0.343 |
| 17 | 0.322 | 0.404 | 0.411 | 0.374 | 0.343 |
| 18 | 0.376 | 0.340 | 0.340 | 0.362 | 0.369 |
| 19 | 0.441 | 0.404 | 0.376 | 0.359 | 0.345 |
| 20 | 0.537 | 0.499 | 0.470 | 0.451 | 0.437 |
| Average | 0.436 | 0.417 | 0.400 | 0.394 | 0.387 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

B: Probability of Working
Enlisted Wives - Overseas

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.310 | 0.310 | 0.310 | 0.310 | 0.310 |
| 2 | 0.403 | 0.403 | 0.403 | 0.403 | 0.403 |
| 3 | 0.466 | 0.466 | 0.443 | 0.396 | 0.372 |
| 4 | 0.512 | 0.387 | 0.354 | 0.372 | 0.385 |
| 5 | 0.339 | 0.374 | 0.401 | 0.420 | 0.364 |
| 6 | 0.388 | 0.425 | 0.326 | 0.335 | 0.366 |
| 7 | 0.436 | 0.411 | 0.341 | 0.381 | 0.372 |
| 8 | 0.491 | 0.343 | 0.392 | 0.365 | 0.343 |
| 9 | 0.317 | 0.387 | 0.372 | 0.342 | 0.377 |
| 10 | 0.364 | 0.437 | 0.334 | 0.391 | 0.317 |
| 11 | 0.439 | 0.331 | 0.407 | 0.331 | 0.388 |
| 12 | 0.485 | 0.373 | 0.362 | 0.373 | 0.326 |
| 13 | 0.318 | 0.424 | 0.348 | 0.356 | 0.365 |
| 14 | 0.380 | 0.368 | 0.412 | 0.354 | 0.349 |
| 15 | 0.436 | 0.363 | 0.362 | 0.408 | 0.363 |
| 16 | 0.499 | 0.423 | 0.369 | 0.334 | 0.372 |
| 17 | 0.341 | 0.425 | 0.431 | 0.394 | 0.362 |
| 18 | 0.414 | 0.378 | 0.377 | 0.400 | 0.407 |
| 19 | 0.485 | 0.447 | 0.419 | 0.400 | 0.387 |
| 20 | 0.540 | 0.502 | 0.474 | 0.455 | 0.440 |
| Average | 0.418 | 0.399 | 0.382 | 0.376 | 0.369 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

Appendix E: Probability of Working Wives Working
Full Time - Overseas: Results and Input Values

A: Probability of Working Wives Working Full Time
Officer Wives - Overseas

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.584 | 0.584 | 0.584 | 0.584 | 0.584 |
| 2 | 0.697 | 0.697 | 0.697 | 0.697 | 0.697 |
| 3 | 0.700 | 0.700 | 0.688 | 0.662 | 0.648 |
| 4 | 0.684 | 0.613 | 0.593 | 0.604 | 0.612 |
| 5 | 0.567 | 0.589 | 0.606 | 0.617 | 0.583 |
| 6 | 0.565 | 0.588 | 0.524 | 0.530 | 0.551 |
| 7 | 0.592 | 0.577 | 0.532 | 0.558 | 0.552 |
| 8 | 0.621 | 0.530 | 0.562 | 0.544 | 0.530 |
| 9 | 0.487 | 0.534 | 0.525 | 0.505 | 0.527 |
| 10 | 0.509 | 0.556 | 0.489 | 0.527 | 0.477 |
| 11 | 0.519 | 0.449 | 0.499 | 0.449 | 0.487 |
| 12 | 0.553 | 0.483 | 0.476 | 0.483 | 0.451 |
| 13 | 0.432 | 0.502 | 0.452 | 0.458 | 0.464 |
| 14 | 0.449 | 0.441 | 0.469 | 0.432 | 0.429 |
| 15 | 0.500 | 0.454 | 0.453 | 0.483 | 0.454 |
| 16 | 0.522 | 0.475 | 0.440 | 0.418 | 0.443 |
| 17 | 0.436 | 0.490 | 0.494 | 0.470 | 0.450 |
| 18 | 0.464 | 0.441 | 0.440 | 0.455 | 0.459 |
| 19 | 0.495 | 0.472 | 0.455 | 0.443 | 0.434 |
| 20 | 0.572 | 0.549 | 0.531 | 0.520 | 0.511 |
| Average | 0.547 | 0.536 | 0.525 | 0.522 | 0.517 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

**B: Probability of Working Wives Working Full Time
Enlisted Wives - Overseas**

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.554 | 0.554 | 0.554 | 0.554 | 0.554 |
| 2 | 0.630 | 0.630 | 0.630 | 0.630 | 0.630 |
| 3 | 0.659 | 0.659 | 0.646 | 0.618 | 0.604 |
| 4 | 0.678 | 0.606 | 0.586 | 0.597 | 0.606 |
| 5 | 0.563 | 0.586 | 0.603 | 0.614 | 0.580 |
| 6 | 0.590 | 0.613 | 0.549 | 0.556 | 0.576 |
| 7 | 0.616 | 0.601 | 0.556 | 0.582 | 0.576 |
| 8 | 0.636 | 0.546 | 0.578 | 0.560 | 0.546 |
| 9 | 0.524 | 0.570 | 0.561 | 0.541 | 0.564 |
| 10 | 0.549 | 0.595 | 0.529 | 0.566 | 0.517 |
| 11 | 0.590 | 0.520 | 0.570 | 0.520 | 0.558 |
| 12 | 0.608 | 0.539 | 0.532 | 0.539 | 0.507 |
| 13 | 0.494 | 0.564 | 0.515 | 0.521 | 0.527 |
| 14 | 0.533 | 0.525 | 0.553 | 0.515 | 0.512 |
| 15 | 0.557 | 0.511 | 0.510 | 0.540 | 0.511 |
| 16 | 0.600 | 0.554 | 0.519 | 0.495 | 0.521 |
| 17 | 0.488 | 0.542 | 0.546 | 0.523 | 0.503 |
| 18 | 0.534 | 0.510 | 0.510 | 0.525 | 0.529 |
| 19 | 0.580 | 0.557 | 0.539 | 0.528 | 0.519 |
| 20 | 0.617 | 0.594 | 0.577 | 0.566 | 0.557 |
| Average | 0.580 | 0.569 | 0.558 | 0.555 | 0.550 |

Note: The input values for the independent variables are the same as the variable values for the probability of the wife working - CONUS (see Appendix A).

Appendix F: Probability of Working a Second
Job - CONUS: Results and Input Values

A: Probability of Member Working
Officers - CONUS

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.029 | 0.029 | 0.029 | 0.029 | 0.029 |
| 2 | 0.030 | 0.030 | 0.030 | 0.030 | 0.030 |
| 3 | 0.035 | 0.035 | 0.034 | 0.031 | 0.029 |
| 4 | 0.041 | 0.032 | 0.030 | 0.031 | 0.032 |
| 5 | 0.030 | 0.032 | 0.034 | 0.035 | 0.031 |
| 6 | 0.034 | 0.037 | 0.030 | 0.030 | 0.032 |
| 7 | 0.040 | 0.038 | 0.033 | 0.036 | 0.035 |
| 8 | 0.046 | 0.034 | 0.038 | 0.036 | 0.034 |
| 9 | 0.034 | 0.039 | 0.038 | 0.036 | 0.038 |
| 10 | 0.039 | 0.045 | 0.037 | 0.041 | 0.035 |
| 11 | 0.046 | 0.037 | 0.043 | 0.037 | 0.042 |
| 12 | 0.050 | 0.040 | 0.039 | 0.040 | 0.036 |
| 13 | 0.038 | 0.047 | 0.040 | 0.041 | 0.042 |
| 14 | 0.042 | 0.041 | 0.045 | 0.040 | 0.040 |
| 15 | 0.046 | 0.040 | 0.040 | 0.044 | 0.040 |
| 16 | 0.055 | 0.047 | 0.042 | 0.039 | 0.042 |
| 17 | 0.039 | 0.047 | 0.048 | 0.044 | 0.041 |
| 18 | 0.045 | 0.042 | 0.042 | 0.044 | 0.045 |
| 19 | 0.049 | 0.046 | 0.043 | 0.042 | 0.040 |
| 20 | 0.059 | 0.054 | 0.051 | 0.049 | 0.048 |
| Average | 0.041 | 0.040 | 0.038 | 0.038 | 0.037 |

B: Probability of Member Working
Enlisted - CONUS

| Year | Number of Moves | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 0.085 | 0.085 | 0.085 | 0.085 | 0.085 |
| 2 | 0.084 | 0.084 | 0.084 | 0.084 | 0.084 |
| 3 | 0.093 | 0.093 | 0.091 | 0.085 | 0.082 |
| 4 | 0.106 | 0.090 | 0.086 | 0.089 | 0.090 |
| 5 | 0.083 | 0.087 | 0.090 | 0.092 | 0.086 |
| 6 | 0.090 | 0.095 | 0.083 | 0.084 | 0.088 |
| 7 | 0.100 | 0.097 | 0.088 | 0.093 | 0.092 |
| 8 | 0.109 | 0.090 | 0.096 | 0.092 | 0.090 |
| 9 | 0.088 | 0.097 | 0.095 | 0.091 | 0.096 |
| 10 | 0.098 | 0.107 | 0.093 | 0.101 | 0.091 |
| 11 | 0.103 | 0.089 | 0.099 | 0.089 | 0.096 |
| 12 | 0.118 | 0.102 | 0.100 | 0.102 | 0.095 |
| 13 | 0.090 | 0.105 | 0.094 | 0.096 | 0.097 |
| 14 | 0.098 | 0.097 | 0.103 | 0.095 | 0.094 |
| 15 | 0.102 | 0.093 | 0.092 | 0.099 | 0.093 |
| 16 | 0.116 | 0.106 | 0.098 | 0.093 | 0.099 |
| 17 | 0.088 | 0.099 | 0.100 | 0.095 | 0.091 |
| 18 | 0.094 | 0.090 | 0.090 | 0.092 | 0.093 |
| 19 | 0.097 | 0.092 | 0.089 | 0.087 | 0.085 |
| 20 | 0.106 | 0.101 | 0.097 | 0.095 | 0.093 |
| Average | 0.097 | 0.095 | 0.093 | 0.092 | 0.091 |

C: Input Values for Probability Equations
Officers

| Year | BOONIES | MNONWAGE | MTOTDEBT | MILINC | MRANK | KIDS |
|------|---------|----------|----------|----------|-------|------|
| 1 | 0.07 | 1317.90 | 4.74 | 20068.08 | 15.62 | 1.20 |
| 2 | 0.17 | 734.29 | 4.75 | 16448.78 | 14.55 | 0.41 |
| 3 | 0.21 | 666.85 | 4.89 | 19184.84 | 15.15 | 0.58 |
| 4 | 0.15 | 869.89 | 4.55 | 22392.04 | 15.32 | 0.82 |
| 5 | 0.18 | 783.14 | 4.51 | 23601.29 | 15.71 | 0.96 |
| 6 | 0.13 | 1002.24 | 4.21 | 25746.55 | 15.86 | 1.16 |
| 7 | 0.15 | 1078.28 | 4.43 | 26288.20 | 15.87 | 1.28 |
| 8 | 0.14 | 2653.62 | 4.10 | 27903.43 | 15.95 | 1.30 |
| 9 | 0.18 | 1531.22 | 4.11 | 28505.43 | 16.02 | 1.49 |
| 10 | 0.15 | 1661.28 | 4.17 | 29569.98 | 16.10 | 1.64 |
| 11 | 0.15 | 1560.41 | 4.30 | 30900.68 | 16.26 | 1.86 |
| 12 | 0.14 | 1589.89 | 4.21 | 31735.21 | 16.56 | 1.76 |
| 13 | 0.18 | 2053.26 | 4.13 | 32653.64 | 16.63 | 1.94 |
| 14 | 0.16 | 1955.17 | 4.03 | 33188.38 | 16.73 | 2.10 |
| 15 | 0.13 | 2725.75 | 3.98 | 34347.89 | 16.91 | 1.84 |
| 16 | 0.10 | 2664.67 | 4.23 | 35434.61 | 17.08 | 2.09 |
| 17 | 0.14 | 3644.69 | 4.13 | 35513.73 | 17.23 | 2.07 |
| 18 | 0.12 | 2909.20 | 4.46 | 37384.12 | 17.63 | 2.16 |
| 19 | 0.12 | 2922.48 | 4.19 | 37923.50 | 17.57 | 2.06 |
| 20 | 0.10 | 4678.05 | 4.47 | 38194.71 | 17.58 | 2.04 |

Constant Value
SEPARATE 2.938

Note: The values for "MMONTHS" are the same as the values for "SMONTHS" (see Appendix A).

**D: Input Values for Probability Equations
Enlisted Personnel**

| <u>Year</u> | <u>BOONIES</u> | <u>MNONWAGE</u> | <u>MTOTDEBT</u> | <u>MILINC</u> | <u>MRANK</u> | <u>KIDS</u> |
|-------------|----------------|-----------------|-----------------|---------------|--------------|-------------|
| 1 | 0.08 | 1139.61 | 4.16 | 11414.55 | 4.37 | 1.08 |
| 2 | 0.14 | 832.54 | 3.61 | 8633.42 | 3.26 | 0.67 |
| 3 | 0.13 | 414.22 | 3.77 | 9344.74 | 3.64 | 0.69 |
| 4 | 0.20 | 638.43 | 4.01 | 10375.63 | 4.17 | 0.92 |
| 5 | 0.19 | 524.48 | 4.28 | 12313.20 | 4.56 | 1.01 |
| 6 | 0.14 | 787.12 | 4.24 | 12746.65 | 4.84 | 1.14 |
| 7 | 0.13 | 895.61 | 4.28 | 13094.89 | 5.01 | 1.32 |
| 8 | 0.13 | 591.05 | 4.39 | 13878.64 | 5.33 | 1.41 |
| 9 | 0.14 | 904.97 | 4.34 | 14269.35 | 5.48 | 1.61 |
| 10 | 0.16 | 918.44 | 4.56 | 15213.61 | 5.84 | 1.73 |
| 11 | 0.12 | 935.49 | 4.52 | 15441.04 | 5.89 | 1.68 |
| 12 | 0.13 | 816.93 | 4.66 | 15668.80 | 6.10 | 1.93 |
| 13 | 0.13 | 504.35 | 4.54 | 16357.50 | 6.25 | 1.96 |
| 14 | 0.12 | 1251.38 | 4.63 | 16796.08 | 6.42 | 2.00 |
| 15 | 0.14 | 990.73 | 4.51 | 17281.26 | 6.58 | 1.99 |
| 16 | 0.14 | 1251.95 | 4.80 | 17546.41 | 6.66 | 2.16 |
| 17 | 0.15 | 1040.83 | 4.54 | 18006.50 | 6.85 | 2.11 |
| 18 | 0.15 | 997.74 | 4.61 | 18622.51 | 7.06 | 2.06 |
| 19 | 0.16 | 947.58 | 4.47 | 18927.18 | 7.16 | 1.96 |
| 20 | 0.16 | 986.18 | 4.64 | 19986.35 | 7.50 | 2.10 |

Constant Value
SEPARATE 3.185

Note: The values for "MMONTHS" are the same as the values for "SMONTHS" (see Appendix A).

Appendix G: Military Income: Equations,
Results, and Input Values

A: Equations for Military Income

Officers

Dependent Variable: Military Income
Sample Size: 2161
Adjusted R-Square: .8294

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>t</u> | <u>Prob > t</u> |
|------------------|-------------------------------|----------|--------------------|
| INTERCEPT | -7654.070 | -2.394 | 0.0167 |
| YEAR | 532.741 | 8.771 | 0.0001 |
| MAGE (age) | 1182.833 | 7.601 | 0.0001 |
| MAGE2 (age sq) | -4.708 | -2.463 | 0.0139 |
| OMA (master's) | 99.575 | 0.369 | 0.7124 |
| OPHD (PHD) | 3463.422 | 5.621 | 0.0001 |
| OED (ed level) | 269.271 | 2.558 | 0.0106 |
| MOVERSEA (month) | -2.070 | -0.572 | 0.5671 |
| MSEADUTY (month) | 35.775 | 11.168 | 0.0001 |
| FLTPAY (0/1) | 4824.453 | 24.204 | 0.0001 |
| PROPAY (0/1) | 8545.370 | 9.897 | 0.0001 |
| ACADEMY (0/1) | 1596.842 | 6.604 | 0.0001 |

Enlisted

Dependent Variable: Military Income
Sample Size: 1624
Adjusted R-Square: .7209

| <u>Variable</u> | <u>Parameter Estimate</u> | <u>t</u> | <u>Prob > t</u> |
|-----------------|-------------------------------|----------|--------------------|
| INTERCEPT | 15090.694 | 9.600 | 0.0001 |
| YEAR | 709.329 | 20.115 | 0.0001 |
| MAGE | -39.295 | -0.404 | 0.6860 |
| MAGE2 | -0.185 | -0.131 | 0.8957 |
| EDLEVEL | 99.830 | 1.983 | 0.0476 |
| MOVERSEA | -2.790 | -1.285 | 0.1988 |
| MSEADUTY | 19.444 | 9.582 | 0.0001 |
| FLTPAY | 548.019 | 1.653 | 0.0985 |
| PROPAY | 2237.052 | 8.461 | 0.0001 |

Source (5:15,17)

B: Expected Military Income - Officers

| <u>Year</u> | <u>Air Force</u> | <u>Army</u> | <u>Navy</u> | <u>Marines</u> |
|-------------|------------------|-------------|-------------|----------------|
| 1 | 24,930 | 24,262 | 24,585 | 24,028 |
| 2 | 25,672 | 24,047 | 26,321 | 24,825 |
| 3 | 27,170 | 26,887 | 28,165 | 25,889 |
| 4 | 29,754 | 27,488 | 29,754 | 27,498 |
| 5 | 30,080 | 29,157 | 30,561 | 29,641 |
| 6 | 31,917 | 31,862 | 31,591 | 31,277 |
| 7 | 32,668 | 32,196 | 34,213 | 32,548 |
| 8 | 34,651 | 33,578 | 34,864 | 34,085 |
| 9 | 35,481 | 34,323 | 36,171 | 35,116 |
| 10 | 37,603 | 36,163 | 38,758 | 35,677 |
| 11 | 39,338 | 37,545 | 40,393 | 37,458 |
| 12 | 40,804 | 38,567 | 41,882 | 39,594 |
| 13 | 41,549 | 40,540 | 42,784 | 41,163 |
| 14 | 43,400 | 41,390 | 44,895 | 42,218 |
| 15 | 44,449 | 42,989 | 45,978 | 43,303 |
| 16 | 45,909 | 44,197 | 47,633 | 44,958 |
| 17 | 46,546 | 46,116 | 48,410 | 46,252 |
| 18 | 47,678 | 46,703 | 50,479 | 47,823 |
| 19 | 49,547 | 48,349 | 49,811 | 49,420 |
| 20 | 50,053 | 49,843 | 52,818 | 49,390 |
| <hr/> | | | | |
| Total | 759,197 | 736,202 | 780,065 | 742,162 |
| Average | . 37,960 | 36,810 | 39,003 | 37,108 |
| P.V. | 544,766 | 527,766 | 558,766 | 531,632 |
| Annuity | 36,617 | 35,474 | 37,558 | 35,734 |

C: Expected Military Income - Enlisted

| <u>Year</u> | <u>Air Force</u> | <u>Army</u> | <u>Navy</u> | <u>Marines</u> |
|-------------|------------------|-------------|-------------|----------------|
| 1 | 16,327 | 16,251 | 16,649 | 16,334 |
| 2 | 16,974 | 16,906 | 17,089 | 16,905 |
| 3 | 17,659 | 17,556 | 17,890 | 17,587 |
| 4 | 18,307 | 18,189 | 18,784 | 18,291 |
| 5 | 18,942 | 18,831 | 19,654 | 19,020 |
| 6 | 19,607 | 19,506 | 20,203 | 19,704 |
| 7 | 20,331 | 20,230 | 20,928 | 20,426 |
| 8 | 20,952 | 20,821 | 21,867 | 21,129 |
| 9 | 21,663 | 21,581 | 22,694 | 21,901 |
| 10 | 22,250 | 22,277 | 23,347 | 22,421 |
| 11 | 22,947 | 22,946 | 23,991 | 23,317 |
| 12 | 23,625 | 23,580 | 24,843 | 23,847 |
| 13 | 24,141 | 24,313 | 25,555 | 24,597 |
| 14 | 24,890 | 24,744 | 26,182 | 25,030 |
| 15 | 25,535 | 25,475 | 26,972 | 25,703 |
| 16 | 26,101 | 26,023 | 27,700 | 26,284 |
| 17 | 26,762 | 26,553 | 28,511 | 26,912 |
| 18 | 27,480 | 27,284 | 28,861 | 27,513 |
| 19 | 28,065 | 28,071 | 29,926 | 28,423 |
| 20 | 28,716 | 28,584 | 31,126 | 28,938 |
| <hr/> | | | | |
| Total | 451,274 | 449,722 | 472,770 | 454,283 |
| Average | 22,564 | 22,486 | 23,638 | 22,714 |
| P.V. | 326,201 | 325,046 | 340,792 | 328,224 |
| Annuity | 21,926 | 21,848 | 22,907 | 22,062 |

D: Input Values - Air Force Officers

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY | ACADEMY |
|------|------|----------|----------|--------|--------|---------|
| 1 | 22 | 0.89 | 0 | 0.21 | 0.24 | 0.05 |
| 2 | 23 | 0.13 | 0 | 0.25 | 0.13 | 0.04 |
| 3 | 24 | 1.79 | 0 | 0.37 | 0.05 | 0.11 |
| 4 | 25 | 4.19 | 0 | 0.60 | 0.04 | 0.16 |
| 5 | 26 | 5.76 | 0 | 0.43 | 0.00 | 0.17 |
| 6 | 27 | 9.13 | 0 | 0.40 | 0.05 | 0.23 |
| 7 | 28 | 11.55 | 0 | 0.30 | 0.03 | 0.20 |
| 8 | 29 | 13.47 | 0 | 0.36 | 0.05 | 0.25 |
| 9 | 30 | 18.38 | 0 | 0.35 | 0.01 | 0.12 |
| 10 | 31 | 14.38 | 0 | 0.44 | 0.03 | 0.17 |
| 11 | 32 | 19.28 | 0 | 0.46 | 0.07 | 0.10 |
| 12 | 33 | 23.49 | 0 | 0.51 | 0.04 | 0.15 |
| 13 | 34 | 26.51 | 0 | 0.37 | 0.06 | 0.06 |
| 14 | 35 | 27.31 | 0 | 0.53 | 0.02 | 0.08 |
| 15 | 36 | 30.17 | 0 | 0.44 | 0.04 | 0.04 |
| 16 | 37 | 33.70 | 0 | 0.43 | 0.04 | 0.13 |
| 17 | 38 | 40.54 | 0 | 0.37 | 0.00 | 0.08 |
| 18 | 39 | 40.90 | 0 | 0.31 | 0.01 | 0.07 |
| 19 | 40 | 51.31 | 0 | 0.41 | 0.01 | 0.11 |
| 20 | 41 | 52.78 | 0 | 0.26 | 0.00 | 0.10 |

Constant Values

| | |
|------|---------|
| OMA | 0.4011 |
| OPHD | 0.1243 |
| OED | 17.4350 |

E: Input Values - Army Officers

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY | ACADEMY |
|------|------|----------|----------|--------|--------|---------|
| 1 | 22 | 1.74 | 0 | 0.11 | 0.21 | 0.05 |
| 2 | 23 | 3.35 | 0 | 0.10 | 0.00 | 0.13 |
| 3 | 24 | 6.64 | 0 | 0.15 | 0.13 | 0.13 |
| 4 | 25 | 12.68 | 0 | 0.11 | 0.03 | 0.24 |
| 5 | 26 | 13.23 | 0 | 0.20 | 0.03 | 0.09 |
| 6 | 27 | 17.05 | 0 | 0.13 | 0.18 | 0.28 |
| 7 | 28 | 17.77 | 0 | 0.09 | 0.09 | 0.18 |
| 8 | 29 | 28.04 | 0 | 0.04 | 0.13 | 0.09 |
| 9 | 30 | 32.71 | 0 | 0.06 | 0.02 | 0.19 |
| 10 | 31 | 33.29 | 0 | 0.13 | 0.04 | 0.13 |
| 11 | 32 | 40.40 | 0 | 0.09 | 0.06 | 0.13 |
| 12 | 33 | 43.96 | 0 | 0.04 | 0.04 | 0.15 |
| 13 | 34 | 39.14 | 0 | 0.16 | 0.04 | 0.14 |
| 14 | 35 | 49.74 | 0 | 0.10 | 0.03 | 0.05 |
| 15 | 36 | 50.50 | 0 | 0.13 | 0.02 | 0.15 |
| 16 | 37 | 52.00 | 0 | 0.10 | 0.02 | 0.14 |
| 17 | 38 | 56.84 | 0 | 0.14 | 0.06 | 0.16 |
| 18 | 39 | 59.88 | 0 | 0.05 | 0.02 | 0.17 |
| 19 | 40 | 64.51 | 0 | 0.13 | 0.03 | 0.07 |
| 20 | 41 | 69.80 | 0 | 0.17 | 0.02 | 0.11 |

| <u>Constant Values</u> | |
|------------------------|---------|
| OMA | 0.4718 |
| OPHD | 0.1197 |
| ORD | 17.7394 |

F: Input Values - Navy Officers

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY | ACADEMY |
|------|------|----------|----------|--------|--------|---------|
| 1 | 22 | 1.31 | 1.56 | 0.19 | 0.19 | 0.19 |
| 2 | 23 | 3.67 | 3.67 | 0.24 | 0.19 | 0.14 |
| 3 | 24 | 3.55 | 9.15 | 0.18 | 0.24 | 0.15 |
| 4 | 25 | 4.28 | 13.35 | 0.40 | 0.09 | 0.26 |
| 5 | 26 | 8.49 | 18.24 | 0.27 | 0.09 | 0.13 |
| 6 | 27 | 8.79 | 20.72 | 0.23 | 0.04 | 0.19 |
| 7 | 28 | 13.02 | 29.46 | 0.35 | 0.06 | 0.26 |
| 8 | 29 | 16.42 | 25.08 | 0.23 | 0.05 | 0.28 |
| 9 | 30 | 15.55 | 24.76 | 0.29 | 0.03 | 0.13 |
| 10 | 31 | 17.49 | 45.63 | 0.29 | 0.06 | 0.23 |
| 11 | 32 | 18.23 | 49.03 | 0.33 | 0.03 | 0.33 |
| 12 | 33 | 27.74 | 43.29 | 0.29 | 0.09 | 0.32 |
| 13 | 34 | 29.62 | 44.24 | 0.29 | 0.06 | 0.15 |
| 14 | 35 | 21.68 | 65.26 | 0.29 | 0.06 | 0.12 |
| 15 | 36 | 26.77 | 57.23 | 0.23 | 0.09 | 0.14 |
| 16 | 37 | 36.43 | 63.89 | 0.30 | 0.06 | 0.13 |
| 17 | 38 | 29.07 | 59.83 | 0.21 | 0.05 | 0.17 |
| 18 | 39 | 33.80 | 67.43 | 0.28 | 0.03 | 0.35 |
| 19 | 40 | 35.08 | 57.46 | 0.08 | 0.00 | 0.08 |
| 20 | 41 | 41.37 | 86.17 | 0.20 | 0.00 | 0.13 |

Constant Values

| | |
|------|---------|
| OMA | 0.3117 |
| OPHD | 0.1169 |
| OED | 17.1948 |

G: Input Values - Marine Officers

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY | ACADEMY |
|------|------|----------|----------|--------|--------|---------|
| 1 | 22 | 0.36 | 0.36 | 0.55 | 0 | 0.09 |
| 2 | 23 | 0.60 | 0.00 | 0.37 | 0 | 0.20 |
| 3 | 24 | 3.33 | 0.67 | 0.31 | 0 | 0.10 |
| 4 | 25 | 4.33 | 0.58 | 0.36 | 0 | 0.03 |
| 5 | 26 | 6.50 | 1.43 | 0.45 | 0 | 0.16 |
| 6 | 27 | 8.38 | 4.03 | 0.47 | 0 | 0.15 |
| 7 | 28 | 10.84 | 4.38 | 0.42 | 0 | 0.18 |
| 8 | 29 | 15.72 | 4.45 | 0.47 | 0 | 0.09 |
| 9 | 30 | 17.02 | 4.41 | 0.37 | 0 | 0.14 |
| 10 | 31 | 18.66 | 3.62 | 0.23 | 0 | 0.04 |
| 11 | 32 | 21.69 | 6.28 | 0.28 | 0 | 0.06 |
| 12 | 33 | 23.96 | 8.29 | 0.39 | 0 | 0.14 |
| 13 | 34 | 24.32 | 7.20 | 0.44 | 0 | 0.12 |
| 14 | 35 | 28.48 | 10.18 | 0.36 | 0 | 0.09 |
| 15 | 36 | 30.54 | 7.38 | 0.35 | 0 | 0.00 |
| 16 | 37 | 36.69 | 5.33 | 0.41 | 0 | 0.05 |
| 17 | 38 | 40.60 | 6.34 | 0.37 | 0 | 0.11 |
| 18 | 39 | 42.19 | 8.49 | 0.41 | 0 | 0.08 |
| 19 | 40 | 47.59 | 12.72 | 0.44 | 0 | 0.06 |
| 20 | 41 | 51.38 | 7.62 | 0.19 | 0 | 0.08 |

| <u>Constant Values</u> | |
|------------------------|---------|
| OMA | 0.3111 |
| OPHD | 0.0111 |
| OED | 16.8111 |

H: Input Values - Air Force Enlisted

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY |
|------|------|----------|----------|--------|--------|
| 1 | 19 | 0.02 | 0 | 0.02 | 0.00 |
| 2 | 20 | 1.85 | 0 | 0.00 | 0.00 |
| 3 | 21 | 3.88 | 0 | 0.01 | 0.01 |
| 4 | 22 | 6.67 | 0 | 0.04 | 0.00 |
| 5 | 23 | 12.32 | 0 | 0.02 | 0.00 |
| 6 | 24 | 14.93 | 0 | 0.04 | 0.00 |
| 7 | 25 | 16.11 | 0 | 0.08 | 0.02 |
| 8 | 26 | 16.47 | 0 | 0.05 | 0.01 |
| 9 | 27 | 24.52 | 0 | 0.02 | 0.05 |
| 10 | 28 | 26.21 | 0 | 0.10 | 0.00 |
| 11 | 29 | 35.14 | 0 | 0.05 | 0.04 |
| 12 | 30 | 36.19 | 0 | 0.09 | 0.04 |
| 13 | 31 | 41.49 | 0 | 0.02 | 0.00 |
| 14 | 32 | 48.60 | 0 | 0.10 | 0.03 |
| 15 | 33 | 51.25 | 0 | 0.13 | 0.02 |
| 16 | 34 | 66.40 | 0 | 0.04 | 0.02 |
| 17 | 35 | 57.18 | 0 | 0.04 | 0.01 |
| 18 | 36 | 65.26 | 0 | 0.03 | 0.05 |
| 19 | 37 | 66.55 | 0 | 0.07 | 0.01 |
| 20 | 38 | 70.64 | 0 | 0.04 | 0.02 |

Constant Value
EDLEVEL 13.3277

I: Input Values - Army Enlisted

| <u>YEAR</u> | <u>MAGE</u> | <u>MOVERSEA</u> | <u>MSEADUTY</u> | <u>FLTPAY</u> | <u>PROPAY</u> |
|-------------|-------------|-----------------|-----------------|---------------|---------------|
| 1 | 20 | 1.67 | 0 | 0.03 | 0.00 |
| 2 | 21 | 4.38 | 0 | 0.03 | 0.00 |
| 3 | 22 | 8.67 | 0 | 0.03 | 0.00 |
| 4 | 23 | 12.94 | 0 | 0.00 | 0.00 |
| 5 | 24 | 26.00 | 0 | 0.03 | 0.00 |
| 6 | 25 | 24.86 | 0 | 0.01 | 0.01 |
| 7 | 26 | 32.17 | 0 | 0.08 | 0.03 |
| 8 | 27 | 41.23 | 0 | 0.00 | 0.03 |
| 9 | 28 | 39.37 | 0 | 0.01 | 0.07 |
| 10 | 29 | 40.41 | 0 | 0.00 | 0.09 |
| 11 | 30 | 46.68 | 0 | 0.05 | 0.09 |
| 12 | 31 | 57.71 | 0 | 0.02 | 0.10 |
| 13 | 32 | 56.68 | 0 | 0.03 | 0.13 |
| 14 | 33 | 60.21 | 0 | 0.00 | 0.04 |
| 15 | 34 | 73.85 | 0 | 0.00 | 0.09 |
| 16 | 35 | 70.68 | 0 | 0.03 | 0.03 |
| 17 | 36 | 86.32 | 0 | 0.00 | 0.00 |
| 18 | 37 | 83.62 | 0 | 0.00 | 0.03 |
| 19 | 38 | 92.79 | 0 | 0.00 | 0.10 |
| 20 | 39 | 77.67 | 0 | 0.07 | 0.00 |

Constant Value
EDLEVEL 13.0224

J: Input Values - Navy Enlisted

| YEAR | MAGE | MC | ERSEA | MSEADUTY | FLTPAY | PROPAY |
|------|------|----|-------|----------|--------|--------|
| 1 | 19 | | 0.88 | 3.54 | 0.04 | 0.13 |
| 2 | 20 | | 1.75 | 6.29 | 0.07 | 0.00 |
| 3 | 21 | | 3.84 | 11.98 | 0.05 | 0.02 |
| 4 | 22 | | 7.04 | 17.20 | 0.06 | 0.08 |
| 5 | 23 | | 12.29 | 25.77 | 0.00 | 0.12 |
| 6 | 24 | | 13.84 | 26.83 | 0.01 | 0.06 |
| 7 | 25 | | 18.15 | 31.59 | 0.02 | 0.05 |
| 8 | 26 | | 17.92 | 34.69 | 0.05 | 0.14 |
| 9 | 27 | | 26.93 | 39.68 | 0.10 | 0.17 |
| 10 | 28 | | 22.01 | 43.47 | 0.01 | 0.15 |
| 11 | 29 | | 29.51 | 48.10 | 0.06 | 0.10 |
| 12 | 30 | | 36.38 | 59.34 | 0.09 | 0.09 |
| 13 | 31 | | 32.58 | 64.33 | 0.03 | 0.08 |
| 14 | 32 | | 31.11 | 61.08 | 0.00 | 0.10 |
| 15 | 33 | | 38.00 | 61.96 | 0.04 | 0.15 |
| 16 | 34 | | 42.68 | 79.80 | 0.05 | 0.03 |
| 17 | 35 | | 50.53 | 85.66 | 0.08 | 0.05 |
| 18 | 36 | | 46.61 | 73.87 | 0.00 | 0.03 |
| 19 | 37 | | 49.24 | 88.35 | 0.00 | 0.09 |
| 20 | 38 | | 43.92 | 112.12 | 0.00 | 0.12 |

Constant Value
EDLEVEL 12.8626

K: Input Values - Marine Enlisted

| YEAR | MAGE | MOVERSEA | MSEADUTY | FLTPAY | PROPAY |
|------|------|----------|----------|--------|--------|
| 1 | 19 | 0.88 | 0.08 | 0.00 | 0.04 |
| 2 | 20 | 1.38 | 0.00 | 0.00 | 0.00 |
| 3 | 21 | 4.52 | 0.89 | 0.02 | 0.00 |
| 4 | 22 | 10.10 | 1.00 | 0.00 | 0.03 |
| 5 | 23 | 10.85 | 1.70 | 0.02 | 0.05 |
| 6 | 24 | 10.56 | 1.36 | 0.03 | 0.06 |
| 7 | 25 | 11.76 | 1.79 | 0.01 | 0.09 |
| 8 | 26 | 18.95 | 1.53 | 0.01 | 0.12 |
| 9 | 27 | 14.95 | 2.72 | 0.03 | 0.15 |
| 10 | 28 | 21.66 | 3.94 | 0.01 | 0.09 |
| 11 | 29 | 23.83 | 2.92 | 0.00 | 0.21 |
| 12 | 30 | 25.09 | 3.37 | 0.00 | 0.15 |
| 13 | 31 | 33.95 | 4.21 | 0.10 | 0.17 |
| 14 | 32 | 34.77 | 3.35 | 0.05 | 0.09 |
| 15 | 33 | 32.11 | 6.89 | 0.06 | 0.06 |
| 16 | 34 | 39.94 | 5.78 | 0.00 | 0.06 |
| 17 | 35 | 48.68 | 4.34 | 0.00 | 0.07 |
| 18 | 36 | 58.07 | 7.45 | 0.00 | 0.03 |
| 19 | 37 | 43.46 | 6.88 | 0.00 | 0.13 |
| 20 | 38 | 58.19 | 8.94 | 0.03 | 0.06 |

Constant Value
EDLEVEL 12.6207

Appendix H: Total Family Income

A: Total Family Income
Air Force Officers

| Year | Number of Moves | | | | |
|---------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 26,381 | 26,381 | 26,381 | 26,381 | 26,381 |
| 2 | 30,998 | 30,998 | 30,998 | 30,998 | 30,998 |
| 3 | 32,943 | 32,943 | 30,732 | 30,218 | 29,952 |
| 4 | 35,416 | 32,155 | 33,772 | 33,944 | 34,075 |
| 5 | 31,925 | 34,228 | 34,493 | 34,674 | 32,132 |
| 6 | 35,915 | 36,266 | 33,351 | 33,397 | 35,639 |
| 7 | 37,198 | 34,973 | 36,226 | 36,598 | 34,532 |
| 8 | 39,625 | 38,140 | 38,596 | 36,353 | 38,084 |
| 9 | 36,743 | 39,353 | 37,233 | 38,884 | 37,231 |
| 10 | 41,196 | 41,885 | 40,864 | 41,386 | 40,666 |
| 11 | 43,277 | 40,310 | 42,924 | 40,267 | 42,711 |
| 12 | 45,603 | 44,444 | 42,350 | 44,386 | 41,952 |
| 13 | 42,557 | 45,485 | 44,734 | 42,825 | 44,838 |
| 14 | 46,732 | 44,634 | 46,962 | 46,407 | 44,381 |
| 15 | 48,708 | 47,941 | 45,930 | 48,305 | 47,833 |
| 16 | 50,742 | 49,903 | 49,327 | 47,003 | 47,322 |
| 17 | 47,966 | 48,765 | 50,740 | 50,317 | 49,968 |
| 18 | 51,829 | 51,399 | 49,380 | 49,562 | 49,580 |
| 19 | 54,489 | 54,006 | 53,648 | 53,401 | 53,210 |
| 20 | 56,341 | 55,779 | 55,355 | 55,054 | 54,817 |
| <hr/> | | | | | |
| Total | 836,586 | 829,986 | 823,997 | 820,360 | 816,302 |
| Average | 41,829 | 41,499 | 41,200 | 41,018 | 40,815 |
| P.V. | 602,145 | 597,337 | 592,901 | 590,425 | 587,412 |
| Annuity | 40,474 | 40,150 | 39,852 | 39,686 | 39,483 |

**B: Total Family Income
Air Force Enlisted**

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|-------------|------------------------|----------|----------|----------|----------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 17,656 | 17,656 | 17,656 | 17,656 | 17,656 |
| 2 | 20,520 | 20,520 | 20,520 | 20,520 | 20,520 |
| 3 | 21,794 | 21,794 | 20,233 | 19,822 | 19,616 |
| 4 | 22,850 | 20,394 | 21,469 | 21,613 | 21,723 |
| 5 | 20,721 | 22,371 | 22,600 | 22,756 | 20,904 |
| 6 | 23,161 | 23,472 | 21,270 | 21,315 | 22,923 |
| 7 | 24,327 | 22,735 | 23,468 | 23,799 | 22,350 |
| 8 | 25,520 | 24,179 | 24,594 | 22,982 | 24,132 |
| 9 | 23,327 | 25,282 | 23,779 | 24,855 | 23,780 |
| 10 | 25,700 | 26,340 | 25,393 | 25,880 | 25,209 |
| 11 | 27,186 | 24,816 | 26,832 | 24,769 | 26,616 |
| 12 | 28,300 | 27,226 | 25,743 | 27,172 | 25,368 |
| 13 | 25,972 | 28,291 | 27,544 | 26,238 | 27,646 |
| 14 | 28,661 | 27,157 | 28,890 | 28,315 | 26,886 |
| 15 | 29,938 | 29,196 | 27,787 | 29,546 | 29,086 |
| 16 | 31,104 | 30,314 | 29,755 | 28,037 | 28,349 |
| 17 | 28,982 | 29,748 | 31,117 | 30,710 | 30,370 |
| 18 | 31,941 | 31,516 | 30,096 | 30,271 | 30,283 |
| 19 | 33,271 | 32,807 | 32,457 | 32,211 | 32,018 |
| 20 | 34,747 | 34,241 | 33,856 | 33,581 | 33,362 |
| <hr/> | | | | | |
| Total | 525,676 | 520,054 | 515,058 | 512,047 | 508,797 |
| Average | 26,284 | 26,003 | 25,753 | 25,602 | 25,440 |
| P.V. | 380,158 | 376,102 | 372,431 | 370,404 | 368,021 |
| Annuity | 25,553 | 25,280 | 25,033 | 24,897 | 24,737 |

**C: Total Family Income
Army Officers**

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|-------------|------------------------|----------|----------|----------|----------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 25,688 | 25,688 | 25,688 | 25,688 | 25,688 |
| 2 | 29,288 | 29,288 | 29,288 | 29,288 | 29,288 |
| 3 | 32,624 | 32,624 | 30,343 | 29,830 | 29,565 |
| 4 | 33,204 | 29,850 | 31,532 | 31,708 | 31,842 |
| 5 | 30,943 | 33,324 | 33,594 | 33,779 | 31,158 |
| 6 | 35,846 | 36,201 | 33,207 | 33,258 | 35,575 |
| 7 | 36,787 | 34,485 | 35,793 | 36,176 | 34,037 |
| 8 | 38,647 | 37,119 | 37,591 | 35,270 | 37,067 |
| 9 | 35,480 | 38,163 | 35,975 | 37,699 | 35,977 |
| 10 | 39,805 | 40,515 | 39,467 | 40,006 | 39,267 |
| 11 | 41,526 | 38,467 | 41,169 | 38,427 | 40,955 |
| 12 | 43,337 | 42,179 | 40,017 | 42,126 | 39,623 |
| 13 | 41,492 | 44,513 | 43,749 | 41,773 | 43,860 |
| 14 | 44,782 | 42,611 | 45,026 | 44,453 | 42,356 |
| 15 | 47,206 | 46,443 | 44,365 | 46,814 | 46,345 |
| 16 | 48,953 | 48,127 | 47,560 | 45,172 | 45,492 |
| 17 | 47,436 | 48,241 | 50,292 | 49,871 | 49,524 |
| 18 | 50,787 | 50,364 | 48,278 | 48,465 | 48,487 |
| 19 | 53,256 | 52,776 | 52,422 | 52,179 | 51,991 |
| 20 | 56,067 | 55,514 | 55,097 | 54,804 | 54,573 |
| <hr/> | | | | | |
| Total | 813,151 | 806,491 | 800,452 | 796,783 | 792,670 |
| Average | 40,658 | 40,325 | 40,023 | 39,839 | 39,634 |
| P.V. | 584,851 | 579,983 | 575,503 | 573,005 | 569,945 |
| Annuity | 39,311 | 38,984 | 38,683 | 38,515 | 38,309 |

**D: Total Family Income
Army Enlisted**

| Year | Number of Moves | | | | |
|----------------|------------------------|----------------|----------------|----------------|----------------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 17,535 | 17,535 | 17,535 | 17,535 | 17,535 |
| 2 | 20,588 | 20,588 | 20,588 | 20,588 | 20,588 |
| 3 | 21,858 | 21,858 | 20,138 | 19,698 | 19,478 |
| 4 | 22,951 | 20,265 | 21,464 | 21,620 | 21,739 |
| 5 | 20,518 | 22,332 | 22,576 | 22,743 | 20,720 |
| 6 | 23,169 | 23,505 | 21,096 | 21,153 | 22,925 |
| 7 | 24,337 | 22,589 | 23,431 | 23,785 | 22,189 |
| 8 | 25,492 | 24,084 | 24,524 | 22,757 | 24,045 |
| 9 | 23,143 | 25,281 | 23,630 | 24,836 | 23,638 |
| 10 | 25,804 | 26,489 | 25,485 | 26,008 | 25,298 |
| 11 | 27,270 | 24,706 | 26,907 | 24,666 | 26,689 |
| 12 | 28,392 | 27,257 | 25,628 | 27,211 | 25,241 |
| 13 | 26,011 | 28,526 | 27,749 | 26,306 | 27,868 |
| 14 | 28,581 | 26,932 | 28,837 | 28,235 | 26,664 |
| 15 | 29,897 | 29,135 | 27,587 | 29,514 | 29,042 |
| 16 | 31,089 | 30,273 | 29,698 | 27,828 | 28,162 |
| 17 | 28,657 | 29,474 | 30,997 | 30,576 | 30,224 |
| 18 | 31,697 | 31,272 | 29,717 | 29,908 | 29,932 |
| 19 | 33,296 | 32,826 | 32,475 | 32,232 | 32,042 |
| 20 | 34,526 | 34,030 | 33,653 | 33,388 | 33,179 |
| <hr/> | | | | | |
| Total | 524,810 | 518,955 | 513,716 | 510,587 | 507,197 |
| Average | 26,240 | 25,948 | 25,686 | 25,529 | 25,360 |
| P.V. | 379,623 | 375,376 | 371,506 | 369,395 | 366,897 |
| Annuity | 25,517 | 25,231 | 24,971 | 24,829 | 24,661 |

**E: Total Family Income
Navy Officers**

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|-------------|------------------------|----------|----------|----------|----------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 26,028 | 26,028 | 26,028 | 26,028 | 26,028 |
| 2 | 31,385 | 31,385 | 31,385 | 31,385 | 31,385 |
| 3 | 33,714 | 33,714 | 31,558 | 31,069 | 30,817 |
| 4 | 35,223 | 32,062 | 33,652 | 33,816 | 33,941 |
| 5 | 32,313 | 34,556 | 34,807 | 34,978 | 32,508 |
| 6 | 35,451 | 35,784 | 32,958 | 33,001 | 35,187 |
| 7 | 38,683 | 36,505 | 37,731 | 38,094 | 36,072 |
| 8 | 39,725 | 38,286 | 38,728 | 36,535 | 38,231 |
| 9 | 37,378 | 39,915 | 37,845 | 39,468 | 37,841 |
| 10 | 42,278 | 42,942 | 41,955 | 42,459 | 41,762 |
| 11 | 44,249 | 41,356 | 43,906 | 41,313 | 43,698 |
| 12 | 46,478 | 45,384 | 43,339 | 45,328 | 42,962 |
| 13 | 43,778 | 46,630 | 45,904 | 44,035 | 46,003 |
| 14 | 48,146 | 46,094 | 48,366 | 47,831 | 45,850 |
| 15 | 50,151 | 49,407 | 47,439 | 49,757 | 49,299 |
| 16 | 52,259 | 51,468 | 50,925 | 48,662 | 48,963 |
| 17 | 49,834 | 50,612 | 52,543 | 52,129 | 51,787 |
| 18 | 54,479 | 54,070 | 52,096 | 52,268 | 52,283 |
| 19 | 54,668 | 54,196 | 53,847 | 53,606 | 53,419 |
| 20 | 59,057 | 58,501 | 58,081 | 57,783 | 57,547 |
| <hr/> | | | | | |
| Total | 855,277 | 848,897 | 843,092 | 839,546 | 835,584 |
| Average | 42,764 | 42,445 | 42,155 | 41,977 | 41,779 |
| P.V. | 614,470 | 609,820 | 605,523 | 603,110 | 600,172 |
| Annuity | 41,302 | 40,989 | 40,701 | 40,538 | 40,341 |

F: Total Family Income
Navy Enlisted

| Year | Number of Moves | | | | |
|---------|-----------------|---------|---------|---------|---------|
| | 5 | 6 | 7 | 8 | 9 |
| 1 | 18,064 | 18,064 | 18,064 | 18,064 | 18,064 |
| 2 | 20,644 | 20,644 | 20,644 | 20,644 | 20,644 |
| 3 | 22,076 | 22,076 | 20,615 | 20,207 | 20,000 |
| 4 | 23,364 | 21,017 | 21,993 | 22,135 | 22,243 |
| 5 | 21,574 | 23,119 | 23,343 | 23,496 | 21,749 |
| 6 | 23,848 | 24,158 | 22,055 | 22,094 | 23,601 |
| 7 | 24,957 | 23,466 | 24,104 | 24,429 | 23,078 |
| 8 | 26,534 | 25,183 | 25,598 | 24,081 | 25,128 |
| 9 | 24,533 | 26,385 | 24,980 | 25,953 | 24,975 |
| 10 | 26,898 | 27,539 | 26,581 | 27,069 | 26,389 |
| 11 | 28,320 | 26,045 | 27,957 | 25,990 | 27,733 |
| 12 | 29,607 | 28,527 | 27,140 | 28,465 | 26,757 |
| 13 | 27,572 | 29,787 | 29,036 | 27,825 | 29,129 |
| 14 | 30,063 | 28,653 | 30,282 | 29,699 | 28,365 |
| 15 | 31,511 | 30,753 | 29,439 | 31,096 | 30,625 |
| 16 | 32,904 | 32,085 | 31,506 | 29,873 | 30,186 |
| 17 | 31,022 | 31,806 | 33,067 | 32,640 | 32,283 |
| 18 | 33,482 | 33,042 | 31,714 | 31,883 | 31,888 |
| 19 | 35,419 | 34,925 | 34,552 | 34,288 | 34,080 |
| 20 | 37,468 | 36,931 | 36,521 | 36,225 | 35,989 |
| <hr/> | | | | | |
| Total | 549,858 | 544,206 | 539,191 | 536,156 | 532,908 |
| Average | 27,493 | 27,210 | 26,960 | 26,808 | 26,645 |
| P.V. | 396,580 | 392,522 | 388,853 | 386,816 | 384,450 |
| Annuity | 26,656 | 26,384 | 26,137 | 26,000 | 25,841 |

**G: Total Family Income
Marine Officers**

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|----------------|------------------------|----------------|----------------|----------------|----------------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 25,420 | 25,420 | 25,420 | 25,420 | 25,420 |
| 2 | 30,015 | 30,015 | 30,015 | 30,015 | 30,015 |
| 3 | 31,357 | 31,357 | 29,256 | 28,778 | 28,530 |
| 4 | 32,831 | 29,762 | 31,311 | 31,469 | 31,590 |
| 5 | 31,414 | 33,600 | 33,847 | 34,014 | 31,604 |
| 6 | 35,094 | 35,420 | 32,664 | 32,704 | 34,833 |
| 7 | 36,848 | 34,734 | 35,944 | 36,288 | 34,321 |
| 8 | 38,870 | 37,463 | 37,893 | 35,757 | 37,405 |
| 9 | 36,329 | 38,799 | 36,782 | 38,361 | 36,777 |
| 10 | 39,227 | 39,894 | 38,900 | 39,405 | 38,704 |
| 11 | 41,262 | 38,440 | 40,924 | 38,396 | 40,719 |
| 12 | 44,177 | 43,091 | 41,097 | 43,033 | 40,720 |
| 13 | 42,205 | 44,995 | 44,275 | 42,455 | 44,370 |
| 14 | 45,483 | 43,481 | 45,700 | 45,165 | 43,233 |
| 15 | 47,444 | 46,709 | 44,792 | 47,051 | 46,598 |
| 16 | 49,608 | 48,814 | 48,268 | 46,054 | 46,353 |
| 17 | 47,719 | 48,487 | 50,365 | 49,954 | 49,614 |
| 18 | 51,893 | 51,476 | 49,549 | 49,720 | 49,734 |
| 19 | 54,356 | 53,874 | 53,518 | 53,271 | 53,079 |
| 20 | 55,595 | 55,042 | 54,623 | 54,326 | 54,090 |
| <hr/> | | | | | |
| Total | 817,146 | 810,872 | 805,141 | 801,634 | 797,710 |
| Average | 40,857 | 40,544 | 40,257 | 40,082 | 39,885 |
| P.V. | 587,105 | 582,544 | 578,311 | 575,926 | 573,019 |
| Annuity | 39,463 | 39,156 | 38,872 | 38,711 | 38,516 |

**H: Total Family Income
Marine Enlisted**

| <u>Year</u> | <u>Number of Moves</u> | | | | |
|----------------|------------------------|----------------|----------------|----------------|----------------|
| | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
| 1 | 17,699 | 17,699 | 17,699 | 17,699 | 17,699 |
| 2 | 20,220 | 20,220 | 20,220 | 20,220 | 20,220 |
| 3 | 21,484 | 21,484 | 20,118 | 19,747 | 19,559 |
| 4 | 22,620 | 20,429 | 21,350 | 21,481 | 21,581 |
| 5 | 20,833 | 22,278 | 22,482 | 22,621 | 20,991 |
| 6 | 23,128 | 23,411 | 21,456 | 21,490 | 22,901 |
| 7 | 24,224 | 22,826 | 23,438 | 23,737 | 22,468 |
| 8 | 25,469 | 24,243 | 24,619 | 23,200 | 24,191 |
| 9 | 23,668 | 25,399 | 24,079 | 24,998 | 24,073 |
| 10 | 25,799 | 26,391 | 25,503 | 25,953 | 25,323 |
| 11 | 27,504 | 25,354 | 27,157 | 25,299 | 26,941 |
| 12 | 28,399 | 27,386 | 26,080 | 27,325 | 25,718 |
| 13 | 26,552 | 28,625 | 27,925 | 26,784 | 28,009 |
| 14 | 28,749 | 27,422 | 28,951 | 28,404 | 27,148 |
| 15 | 30,095 | 29,374 | 28,135 | 29,694 | 29,246 |
| 16 | 31,299 | 30,521 | 29,971 | 28,430 | 28,724 |
| 17 | 29,316 | 30,038 | 31,222 | 30,826 | 30,495 |
| 18 | 31,878 | 31,471 | 30,221 | 30,373 | 30,375 |
| 19 | 33,660 | 33,195 | 32,844 | 32,594 | 32,396 |
| 20 | 34,989 | 34,483 | 34,095 | 33,815 | 33,590 |
| <hr/> | | | | | |
| Total | 527,586 | 522,250 | 517,564 | 514,690 | 511,647 |
| Average | 26,379 | 26,113 | 25,878 | 25,735 | 25,582 |
| P.V. | 381,207 | 377,382 | 373,959 | 372,032 | 369,818 |
| Annuity | 25,623 | 25,366 | 25,136 | 25,006 | 24,858 |

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This study analyzes the effect varying the number of permanent change of station (PCS) moves during a 20 year military career has on total family income. The number of PCS moves was varied from 5 to 9 over the 20 years to determine the effect on officer and enlisted family income for each of the services. This study limited the population to male military members married to civilian wives. Also, only PCS moves where the wife accompanies the member were considered.

This study identified 4 items that can affect family income as a result of a PCS move. First, the family may have moving expenses that are not reimbursed by the government. Second, if the wife works, she must quit her job and suffer a period of unemployment. Third, the wife must seek employment at the new location. Usually, the new job will pay less than the old job due to foregone tenure. Finally, the military member may have a change in part-time income if he works during his off-duty time. *Key words*

Unreimbursed moving expenses were calculated from data obtained by the Air Force Manpower and Personnel Center in the 1987 PCS Cost Survey. The other components of family income were calculated using data from the 1985 DOD Survey of Officer and Enlisted Personnel and the 1985 DOD Survey of Military Spouses. When possible, equations were derived to predict the probability of working and the income earned from a job. Using these figures, expected family income was calculated for each of the 20 years in the career. Then, a yearly income annuity was calculated for the sum of the present value of the yearly incomes.

Each additional PCS move during a 20 year career decreases the yearly family income annuity by approximately \$200. Increasing the frequency of PCS moves has a greater income impact on officer families than enlisted families.